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COMPUTING INTERNATIONAL

DECEMBER 1986

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CLASS OF'86

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THE CCI OSKARS 1986

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PRINTSHOP . . .

128
OXFORD PASCAL

PLUS/4
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For information write to:

Digital Solutions
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Richmond Hill, Ontario
Canada L4B 1B9
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- sideways printing available on dot matrix printers, for oversized spreadsheets that won't fit on standard paper
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Pocket Writer 128 and 64 are available in French — full AZERTY keyboard support.

132 pages of probably the best Commodore magazine in the Universe!

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COMPUTING
INTERNATIONAL
DECEMBER 1986

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An AWESOMELY MEGA sized CCI approaching 200 pages, and not a penny more . . . The CCI Oskars . . . Captain David Ward's Ocean . . . just too much to list! Place your order now . . . don't risk being left out!

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Commodore's sensational Amiga Offer to CCI Readers

Nobody can say that Commodore doesn't take care of its established users. Commodore has asked us to tell you about an absolutely sensational offer it is making to you ***personally***.

Commodore is giving all Commodore owners the chance to buy *an AMIGA computer* complete with disk drive and monitor and software for ***£500 less*** than the present list price! ***£500 off an AMIGA for you personally!***

If you are a registered UK Commodore owner, there should be in the post to you now a personal letter from Chris Kaday, Commodore UK's newly appointed Managing Director. In the letter he offers, without strings, an amazing £500 discount off the price of an AMIGA for a limited period to all Commodore owners — no matter what Commodore computer you've got.

The special Commodore Owner Offer will bring the price down to the lowest ever in the UK — from £1,475 (plus VAT) to £975.00 (plus VAT). If you are not on the list of registered Commodore owners, for example, if you didn't send your warranty card back, don't despair! You can telephone the special Commodore AMIGA Hotline number, Maidenhead (0628) 770088, give your name and address and you will get a copy of Chris Kaday's letter and the address of your nearest AMIGA dealer, or send in the coupon. When you've got your letter, all you have to do is rush down to your local dealer who will be happy to honour Commodore's £500 discount offer.

This has got to be the best offer of the year and one that even if up to now, you've only thought or dreamed about buying an AMIGA, you should not miss. *You won't be making any commitment by getting the letter.*

So give yourself the chance of a lifetime to get the greatest computer on the market today. There's nothing to touch its graphics, its sound and its all round ability to put you and your computing, home and business, into a totally different class.

£500 off! It's got to be the best present you'll get this Christmas!

I'm interested in Commodore's AMIGA offer. Please send me Chris Kaday's letter and the address of my nearest dealer.

To Commodore UK
AMIGA OFFER, Commodore House, Unit 4,
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CCI View

Dear Reader,

"Timing," says Major Bill Stealey in our exclusive interview with the Microprose boss this month, "is everything!" The publication of this issue of CCI is perfectly timed to be able to give you the first news of Commodore's extraordinary AMIGA offer. It is an offer that is so good and so well-timed — just as more and more AMIGA software is arriving — that very many Commodore owners will want to accept it at once.

It is also good timing that we are able to publish another exclusive interview — with Tom Rattigan, the man who runs the whole of Commodore's global empire. The confidence that Rattigan expresses backs up the growing feeling that Commodore is successfully fighting its way back to being a strong, profitable company. I believe that Tom Rattigan's forceful personality and proven management ability will give present and future Commodore owners the confidence to buy the AMIGA and other CBM computers.

It was not so much timing as energy that took a CCI staffer to Los Angeles to the Commodore Show there. But the timing of the visit, which you can read about on our Made In America page, brought CCI more exclusives — this time of some exciting products. One of these is the highly-prized "World Champion" Chessmaster program which we now have in both 64 and AMIGA versions. Even the European distributors don't have copies yet!

We have used Chessmaster as our cover picture because it was our intention to report it to you in depth. However, just as we were going to the printers another and reputedly excellent chess program arrived — Cyrus Chess from Alligata in the U.K. The time, in this case, was slightly worng to change our cover but we thought, why not set up a "World Championship" tournament between the two. We decided to go for it.

Timing . . . in chess or computers or magazines is vital. We hope our timing suits you.

Yours sincerely,

Antony H. Jacobson
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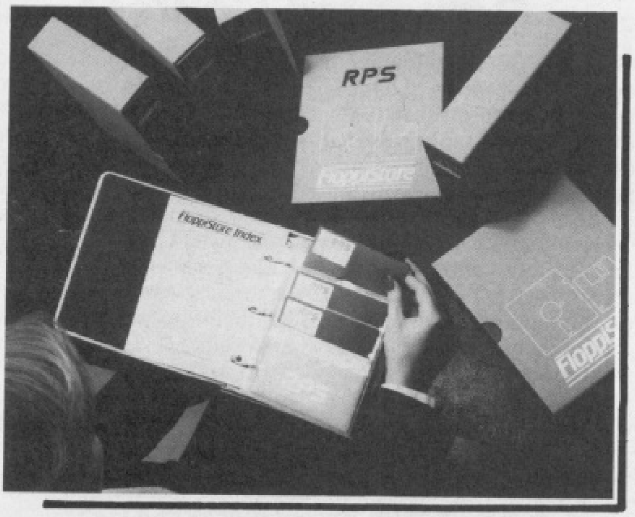
Floppy Disk Storage



A new 'at a glance' storage system — designed for practical and secure storage of floppy disks — is now available from computer media specialist, RPS.

RPS High Focus is the first floppy disk to be redesigned around the needs of today's PCs and office requirements; the specially formulated isotropic coating not only guarantees maximum performance but ensures the disk will never wear out. However, careful handling and storage, even for the best disk, is imperative.

This is why RPS has chosen Floppistore — a unique and practical way to safeguard disks and identify important information quickly and easily.

Designed like a standard software manual, Floppistore is a ring binder containing pages of clear plastic envelopes, and three disks may be stored in each page. Each volume fits neatly into a slip case for convenient shelf storage, and an entire data library can be established offering fast information retrieval.

Disks are stored safely and tidily, and because disk lables are completely visible unnecessary handling is eliminated.

Floppistore is available from leading RPS distributor, Brookes Data Products, and purchasers of 100 RPS High Focus disks of any type will receive 2 free Floppistores.

Contact: Chris Poulton, RPS, High Street, Houghton Regis, Beds. LU5 5QL. Tel 0582 867222.

Quality Budget Label

Code Masters, Britain's newest budget software house, has a simple philosophy. It intends to release games exclusively of full price quality, but for only £1.99.

Software houses have always known that if they reduced their prices they would sell more games, but it was widely accepted the increase in sales would not be sufficient to justify the reductions. What most companies overlooked was that at a certain price, which in this country is £1.99, a new market emerges. This is comprised of individuals who would not normally buy computer games and would rarely enter computer shops. These people buy games in confectioners, petrol stations and supermarkets and this area can account for 50% of sales of budget games.

Code Masters believe their games will sell in sufficient quantities for them to be able to offer the large sums to which top programmers are accustomed.

Code Masters consists of three Darlings: 18 year old Richard Darling, his 20 year old brother David and their father Jim. Together they make a formidable team as Jim was one-time Managing director of A.I. Products, the company then responsible for sourcing all of Mastertronic's software, while Richard and David are award winning programmers whose games have sold in excess of a million copies. Their prodigious range includes The Last V8, Master of Magic and the highly successful Games Creator for Mirrorsoft.

Budget software's share in sales of computer games is constantly increasing. Today it accounts for 40% and current trends indicate that within 12 months it will increase to 60% of a market which is constantly expanding in any case. Code Masters believe that by that time they will be the No. 1 software house in the UK.

The first title to be released will be BMX Simulator from Richard Darling, the sequel to his original best selling BMX Racers — for the Commodore 64. BMX Simulator views the 7 BMX courses of increasing difficulty from a helicopter. There are burms, banks, whoops and ramps which all make the bike turn, lean, speed up or slow down, just as if you were on the track.

The game, which has a 2 player option, has a unique Action Replay facility. Whenever there is a close finish you can see it again, if you wish in slow motion.

This is to be followed by Mr. Angry, Creations for the 64, and Terra Cognite and G Man for the C16. Mr. Angry is set in a hotel where your task as a photo-journalist is to snatch an exclusive shot of a glamour girl staying as a guest. You must collect the camera, flash unit, press pass and key, and then open the doors to find the lady. You are impeded by hotel staff and a very special guest — Mr. Angry. Good graphics and playability in this fun game. Watch out for Mr. Angry!

Mobile Modem Award

Transam M1 Modem from Transam Microsystems Ltd, the world's first in car cellular modem, has won the hardware category in the London Standard Micro-Business Awards for 1986.

The Awards are given for technical innovation and outstanding contribution to business profitability and efficiency. The Transam M1 Modem was chosen from hundreds of new products and machines launched in the last twelve months.

The Transam M1 Modem transfers information between a central computer and a moving or stationary vehicle via Britain's cellular radio network. It is designed for full error correction and automatically selects transmission speed for effective telephone use. It is of immediate practical use to anybody who needs to send and call up information to and from a central office when 'in the field', including sales representatives, doctors, service engineers, architects or surveyors.

Commenting on the Award, Graham Clifton, Managing Director of Transam Microsystems said: 'In developing the M1 we had to recognise the immense potential of a home market that contains over two million mobile workers, their communication needs into the 1990s and the great benefits it could bring to the management of resources for large organisations dealing with a mobile work force.'

Contact: Brendan Owen, Transam Microsystems Ltd, 59-61 Theobald's Road, London WC1X 8SF. Tel: 01-404 4554.

New Nine Graphics

Future Level 9 games will be enhanced with digitised pictures, as displayed at the PCW show in September. Godfrey Dowson, the artist who paints their distinctive posters, is producing the pictures to be digitised. From Knight Orc onwards, AMIGA and CBM64 disc versions of Level 9 games will feature these highly detailed graphics.

Honey-B Cassettes

Interfacing specialist A Line Dataspeed Limited has announced the Honey-B data recorder.

Compatible with any machine with a normal RS232 serial interface the Honey-B is a remarkable breakthrough in economical data-capture at only £550 (plus VAT). Data is stored and delivered on standard cassettes, sizes C15 to C90 (holding approx 300k of data). Combining convenience with security, this device is easy enough for anyone to operate.

DATA RECORDER
Honey-B

Simple but highly effective, the Honey-B comprises a standard tape cassette drive coupled with an RS232c serial interface controller for input and output at either 300 or 1200 baud. This means that it can accept data from a PC or other device which can be played back later or even mailed on a cassette to a remote site for processing.

Honey-B has made applications in the field of data-acquisition and data-collection/data-delivery, in fact wherever fully automated control is not required.

Users of the Honey-B already include British Telecom, British Petroleum, Barclays Bank and the Meteorological Office.

Contact A Line on 0533 778724.

Konix speeds up Speed Kings

For the first time since it was launched, Konix are confident they can now meet demand for their Speed King joystick.

Konix believe that since last January when the joystick was officially launched, UK demand has outstripped supply three times over. In the summer, for example, an order for 60,000 joysticks has to be turned down. This was despite fulfilling orders in the UK for 100,000 units. The situation, however, is remedied as production capability is now 50,000 units per week, whereas last January it was only 3,500 per week.

Commenting on the increased capacity of this factory, Konix Managing Director, Wyn Holloway, said "We would like to thank all our customers for their patience over the last few months. Now that the joystick can be produced in sufficient quantities we can concentrate on ensuring the best joystick yet is also the best selling joystick yet."

The Speed King joystick retails for £12.95.

Contact: Konix, Unit 12-14 Sirhowy Hill Industrial Estate, Tredegar, Gwent, S. Wales NP2 4QZ.

Commodore Computer Courses

MICROWISE UK, following on from their range of educational software, are now offering a number of informal courses suitable for home study using your own Commodore computer.

Courses are intended for both children and adults who want to get a better use and understanding of their Commodore and computing practices generally. All coursework is graded to suit individual age and general ability.

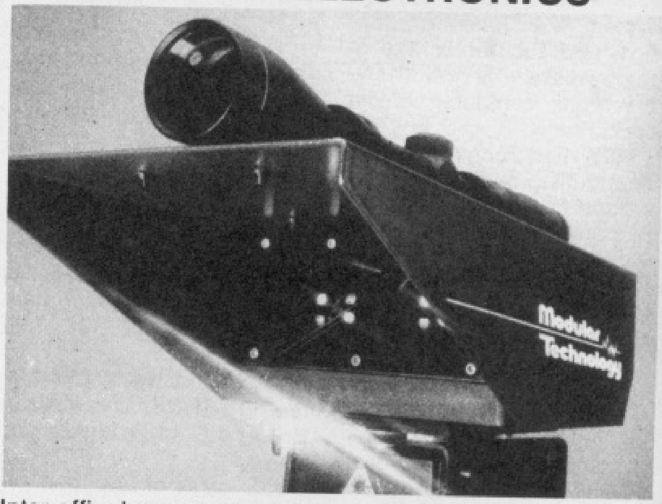
At present courses are available for the Commodore 64 but consideration is being given to include the 128 and Amiga in the near future.

Subjects available include introductory and advanced programming, assembly language, graphics and applications.

Each step-by-step course includes software and texts. A full back-up service is also provided for assessment of coursework and for answers to any related queries.

Contact: MICROWISE UK, Freepost 468, Colchester CO3 4BR.

LASER AGE ELECTRONICS



Inter-office laser communications have arrived. Modular Technology has launched the 'Interlaser Free Space Communications System' This connects electronic equipment in separate buildings without the need for cables or wiring. The link is made through a modulated laser beam that can work at a range of up to 1 kilometre.

Con Driscoll, M.D. of Modular Technology, said that the system is particularly suitable for connecting multiuser systems and local area networks.

Modular is currently offering two systems, the InterLaser at £5,000 and the Ledhead, an infra-red system with a range of up to 200 metres, for £2,500. Both systems will transmit computer data, video and audio signals at up to 2.5Mbits.

Advertising Response Package

When planning and executing an advertising campaign it is all too easy to overlook the problem of dealing with the subsequent response, particularly if the campaign is successful in generating sales leads.

CRA Software has developed a package called ENSURE which provides a comprehensive sales enquiry management system which will run on 90 per cent of micro computers currently in business use.

The system works by entering onto the data base details of each potential customer who contacts the company, including information on the product type and lead source. First the response letters are printed, perhaps a simple acknowledgement or a detailed reply. Next, envelope lables are produced. Finally appropriate notification will be given for the sales team, dealers, distributors or agents to follow-up.

Ensure provides sales management information which can measure the effectiveness of the advertising response by publication, type of ad, by region and by rate of sales conversion since feedback from the field sales organisation can be entered into the computer.

The Ensure package provides a list of readily available previous respondents who can be contacted again with details of new product ranges or additional services thus maximising on the original advertising expenditure.

Contact: CRA Software Limited, Unit 3 Cambridge Technopark, 645 Newmarket Road, Cambridge CB5 8PB.

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CLASS

Well, we're coming up to the time of year when CCI awards its Golden Oskars to the industry for the best releases of 1986. We thought you would like to know those games which are up and running in contention. With game standards improving rapidly, and with the vast numbers of releases, narrowing down our choices to the finalists is pretty difficult! Most of the products in this feature were at one time or another reviewed in CCI, and those that weren't have been looked at by our merciless team of scrutineers.

This month we will not be categorising games, but placing them under their respective publishers. Next month when we feature the CCI Oskar Awards we will award an Oskar to what we feel is the best release in its category. Oskars are awarded, one to each category.

Last Year's Winners

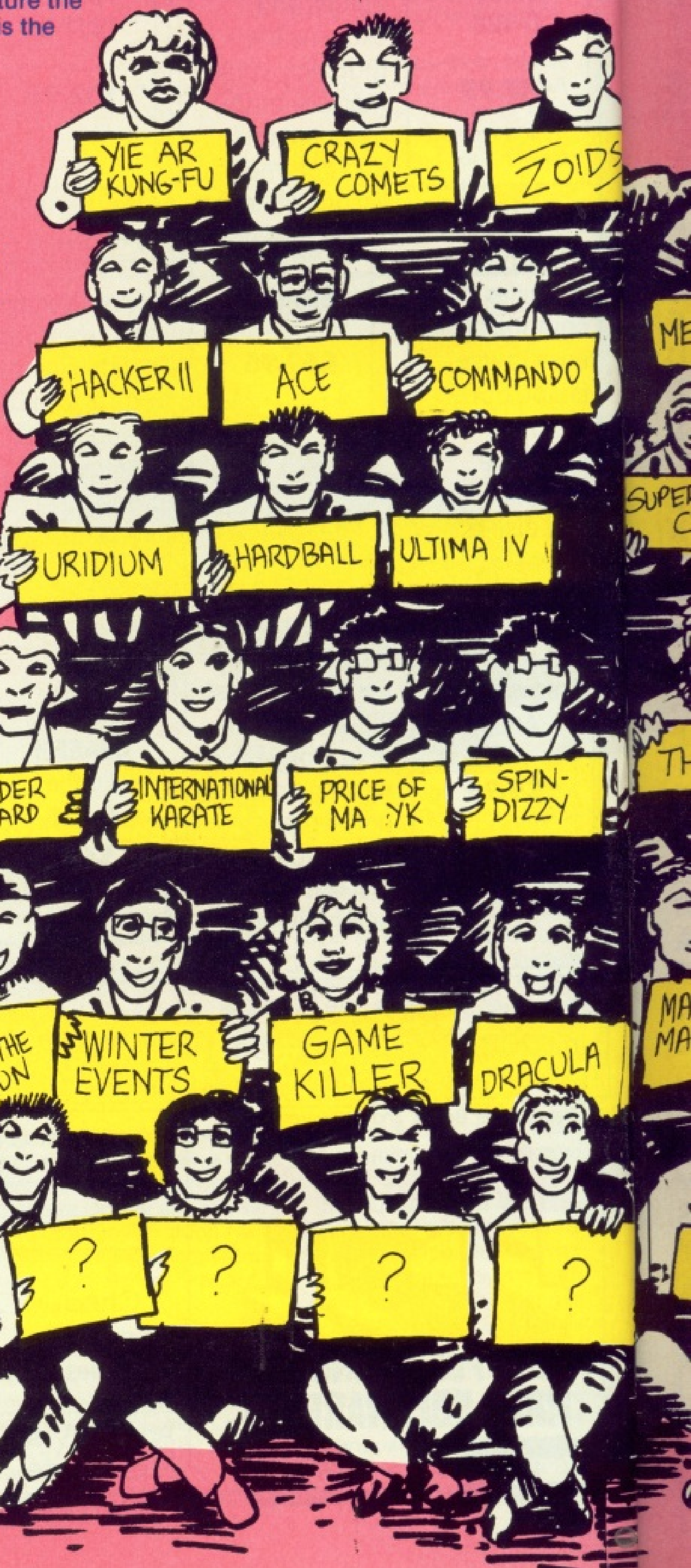
64 Arcade game of the year	**Batalyx, Llamasoft**
64 Arcade/Adventure of the year	**Frankie, Ocean**
64 Adventure of the year	**Red Moon, Level 9**
64 Simulation of the year	**Elite, Firebird**
64 Best game graphics	**Summer Games II, US Gold**
64 Best sound track	**Monty on the Run, Gremlin**
OVERALL GAME OF THE YEAR-SUMMER GAMES II, US GOLD	
C16 Arcade game of the year	**Berks, CRL**
C16 Simulation of the year	**Formula 1, Mastertronic**
Unusual entertainment of the year	**LCP, Activision**
Bargain of the year	**The Last V8, Mastertronic**
Programmer of the year	**David Crane of Activision**
Joystick of the year	**Quickshot II, Spectravideo**
Sound peripheral of the year	**Music Maker, Commodore**
Graphics peripheral of the year	**Datex Mouse, EEC**
Utility of the year	**Final Cartridge, H & P**
Book of the year	**Naked Computer, Arlington**
Educational software of the year	**Macbeth, Creative Sparks**
Business software of the year	**Superbase II, Precision**
Printer of the Year	**CITOH/Riteman C+**
Mosting exciting new product announced - The Amiga	

You'll have to wait until next month to see who will be the winners for the 1986 CCI Oskars, but here is the almost final contenders list.

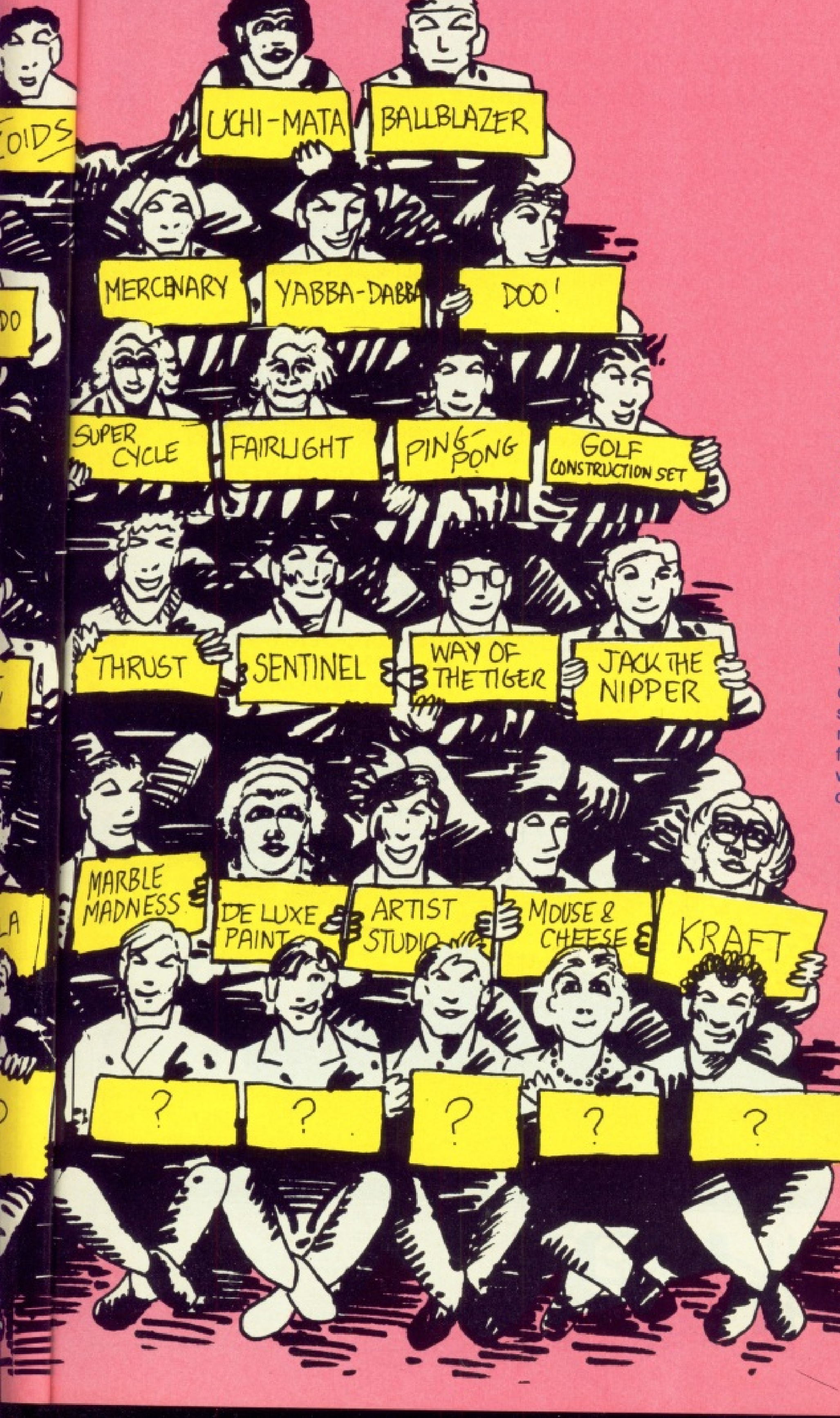
From OCEAN we have YIE AR KUNG-FU (Mega review) one of the first martial arts games, and one of the best.

Martech have three contenders. The first is Crazy Comets which was one of the first games to feature a soundtrack from the Rob Hubbard stable of which we have now seen a lot of, and got a MEGA review in the January issue of CCI. Later in the year came Zoids, which also got a mega review. Another Hubbard sound track, with icon-controlled game play and great graphics made this a strong contender. Their third is Uchi-Mata which we reviewed only recently in the November issue, and got an Awesome preview. Uchi is the first martial arts game to go beyond hit and kick into complex strategy and is a true judo simulation.

Activision features two games. Ballblazer, which got a really grovelling review, was a real breakthrough in 64 games with double-screen gameplay, good music, and smooth four-way



SSOF'86


OIDS
UCHI-MATA
BALLBLAZER
MERCENARY
YABBA-DABBA
DOO!
DO
SUPER CYCLE
FAIRLIGHT
PING-PONG
GOLF CONSTRUCTION SET
THRUST
SENTINEL
WAY OF THE TIGER
JACK THE NIPPER
MARBLE MADNESS
DE LUXE PAINT
ARTIST STUDIO
MOUSE & CHEESE
KRAFT
LA
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scrolling. Newly released, and just in time for this issue is Hacker II, a huge advancement an the immensely popular original Hacker.

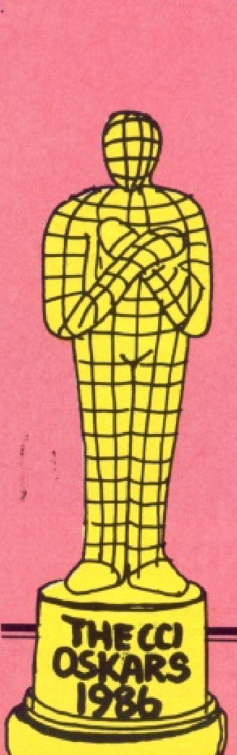
Cascade surprised everybody by launching the ACE flight combat simulator which has got to be one of the best available on the 64. Previously they were selling a compilation tape of 50 games, but ACE surpased everybody's expectations.

Elite produced a very good conversion of the arcade game with their COMMANDO release, and was an almost perfect copy. Again, Mr Hubbard has produced an excellent sound track for this game, and of all the Commando clones, this was the best.

Novagen released Mercenary, which took the 64 market by storm with massive sales, and assured them a place in the annals of 64 games history. It was written by Paul Woakes, and a sequel, The Second City was recently launched with improved graphics. This has got to be one of the best arcade/adventures ever, and is still going strong on other machines.

Quicksilva launched a very late Yabba Dabba Doo ("It's the Flintstones") game early in the year which had a really catchy Flintstones theme tune, and great graphics. You play Fred, and have to build a house for Wilma avoiding a variety of prehistoric pterodactyls and turtles. Silly is the only word for it, but fun!

Hewson attained fame (and fortune!) with Uridium which is now being critisized as being just a mindless shoot 'em up, but was at the time given rave reviews. Uridium was the forerunner of many of today's games, which are just imitations of the original.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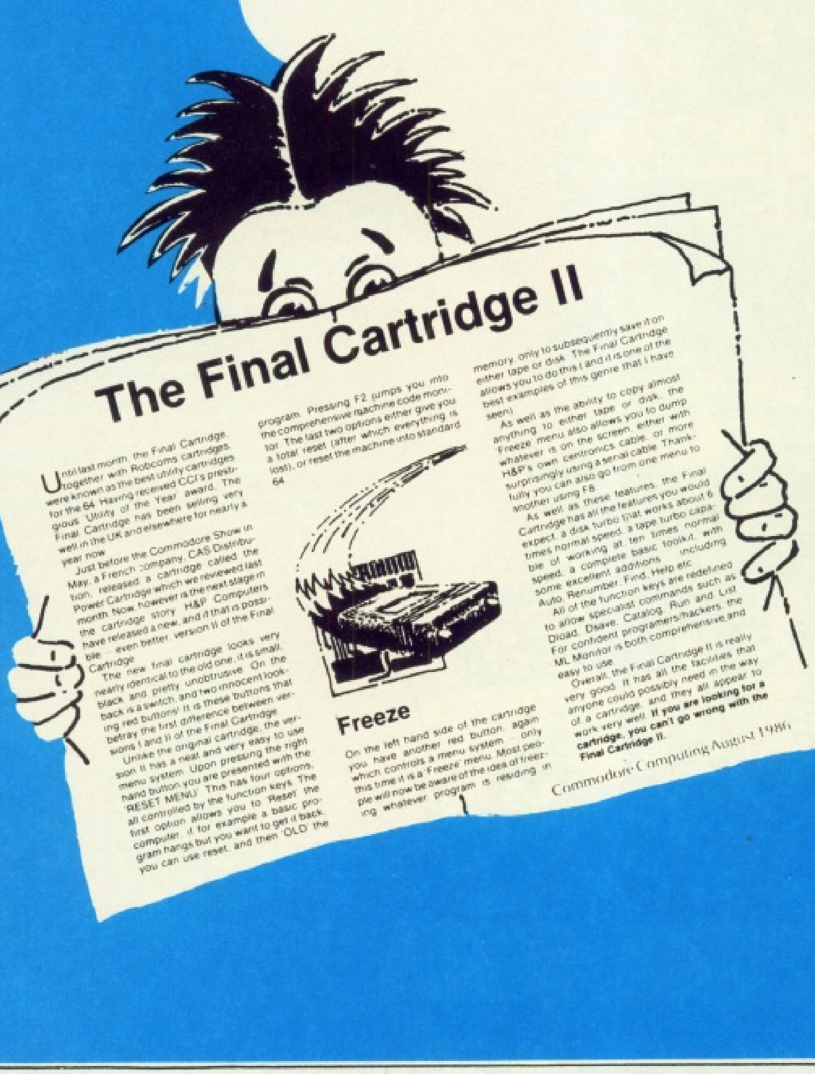

The Final Cartridge II

Until last month, the Final Cartridge, together with Robcoms cartridges, were known as the best utility cartridges for the 64. Having received CCI's prestigious 'Utility of the Year' award, The Final Cartridge has been selling very well in the UK and elsewhere for nearly a year now.

Just before the Commodore Show in May, a French company, CAS Distribution, released a cartridge called the Power Cartridge which we reviewed last month. Now, however is the next stage in the cartridge story. H&P Computers have released a new, and if that is possible – even better, version II of the Final Cartridge.

The new final cartridge looks very nearly identical to the old one, it is small, black and pretty unobtrusive. On the back is a switch, and two innocent looking red buttons! It is these buttons that betray the first difference between versions I and II of the Final Cartridge.

Unlike the original cartridge, the version II has a neat and very easy to use menu system. Upon pressing the right hand button you are presented with the 'RESET MENU'. This has four options, all controlled by the function keys. The first option allows you to 'Reset' the computer, if for example a basic program hangs but you want to get it back you can use reset, and then 'OLD' the program. Pressing F2 jumps you into the comprehensive machine code monitor. The last two options either give you a total reset (after which everything is lost), or reset the machine into standard 64.

Freeze

On the left hand side of the cartridge you have another red button, again which controls a menu system – only this time it is a 'Freeze' menu. Most people will now be aware of the idea of freezing whatever program is residing in memory, only to subsequently save it on either tape or disk. The Final Cartridge allows you to do this (and it is one of the best examples of this genre that I have seen).

As well as the ability to copy almost anything to either tape or disk, the 'Freeze' menu also allows you to dump whatever is on the screen, either with H&P's own centronics cable, or more surprisingly using a serial cable. Thankfully you can also go from one menu to another using F8.

As well as these features, the Final Cartridge has all the features you would expect, a disk turbo that works about 6 times normal speed, a tape turbo capable of working at ten times normal speed, a complete basic toolkit, with some excellent additions ... including Auto, Renumber, Find, Help etc.

All of the function keys are redefined to allow specialist commands such as Dload, Dsave, Catalog, Run and List. For confident programers/hackers, the ML Monitor is both comprehensive and easy to use.

Overall, the Final Cartridge II is really very good. It has all the facilities that anyone could possibly need in the way of a cartridge, and they all appear to work very well. **If you are looking for a cartridge, you can't go wrong with the Final Cartridge II.**

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CLASS OF'86

CONTINUED

US Gold, the giant importer of American software that has grown with incredible rapidity in the last 18 months have three games on our list. The first is HardBall, a Baseball simulator game that featured absolutely amazing graphics, and was stunningly realistic. This game got an AWESOME review. Then comes Ultima IV, the latest release in the now-famous Ultima series that has spanned over several years now. Ultima IV is a role-playing type simulation of massive proportions, and takes months to complete. See forthcoming issue for a second feature on Ultima IV. Thirdly, but definitely not last, comes Super Cycle which is a bike simulation along the lines of Hang-On on the arcades. Super Cycle is anothe game from Epyx, through US Gold in the UK that is set to, and has done, very well.

The Edge have one, but one very good game, that got an AWESOME review in the May issue of CCI; Fairlight. Fairlight has outstanding 3D graphics which are rather Ultimate in sty this is more of a compliment than a slur! "Magic" was the word used to describe this game.

Imagine, now (and then) a branch of Ocean software, released a conversion of the arcade game Ping Pong from Konami (who have incidentally set up their own European marketing operations now). Before you start yawning, this is not a game with two planks on either side of the screen wth a blob representing a ball flying between them. It is a 3D, realistic Table Tennis simulation complete with proper bats, five levels of play, great graphics, and is very addictive! A MEGA review.

Ariolasoft who were one of the first companies to sell disk-based games re-packaged from the US in the UK at low prices have Golf Construction Set up for offers. GCS had four 18-hole championship courses, a 3D view of the course, and an overhead view, and as the name suggests allows you to build and design your own golf courses. There was a lot of controversy over which was better; Leaderboard from US Gold or GCS, but personally I feel GCS is a better game as far as golf goes, and is much more realistic.

System 3 got an AWESOME review for their International Karate game which was, admittedly, over a year late. Nevertheless, IK is still one of the best in terms of graphics, an 11 minute Hubbard sound track, and action. And only £6.50 too.

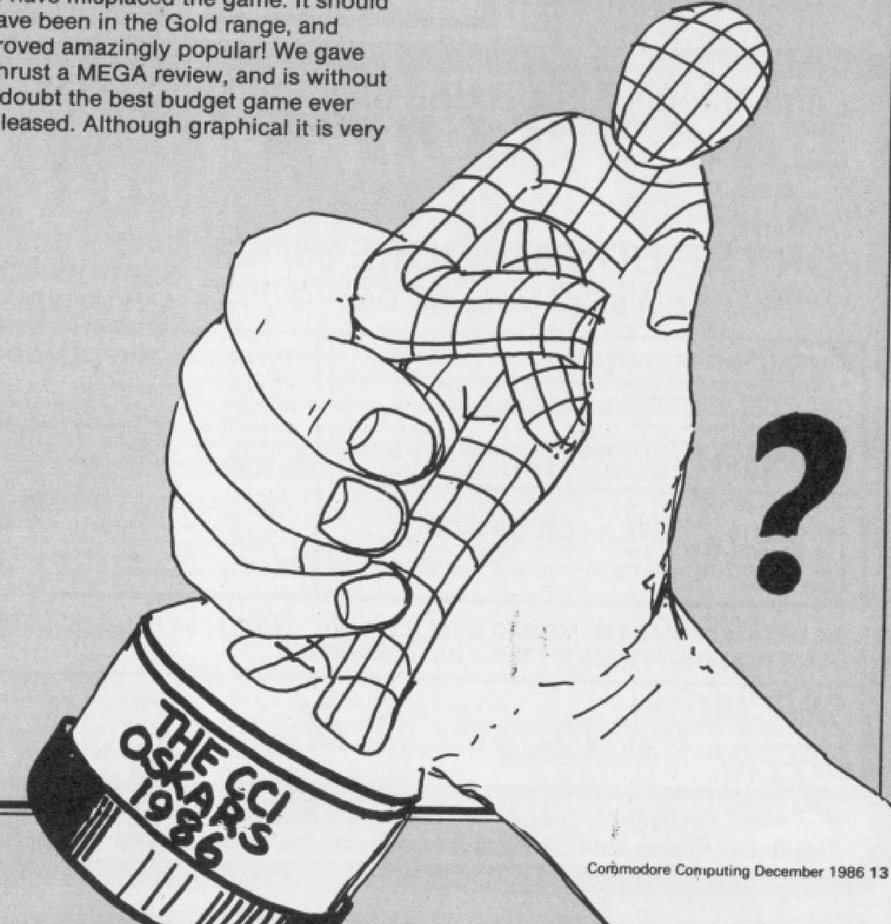
Level 9, as usual, feature high on the list, with their game The Price of Magyk. POM differed from other adventures in that your quest was not to gather treasure, but to learn eighteen spells. That in itself was a nice original touch. Makes a change from a) getting treasure or b) saving the world for the N-th time!

Electric Dream's game, Spindizzy, was the first game that we gave two pages for the review. Spindizzy was the best Marble Madness clone of the lot, certainly better than Gyroscope. A nice touch was that you could either play as a Ball, a Diamond, or a Gyroscope, each beautifully done. This game got a TOTALLY AWESOME review!

Firebird released a budget game a few months ago called Thrust. Unfortunately for them, they seemed to have misplaced the game. It should have been in the Gold range, and proved amazingly popular! We gave Thrust a MEGA review, and is without a doubt the best budget game ever released. Although graphical it is very basic, gameplay is fantastic! And yes, you guessed it-amazing music by Rob Hubbard! As you can read from the review in this issue, Sentinel is something of a stunningly AWESOME game, and is truly in a class of its own. Firebird is certainly not dragging its feet anymore.

Gremlin roared into action (sorry ... what a pun ...) with Way of the Tiger, ANOTHER martial arts game but with you as a ninja, having to prove your skills in three different tests. Tiger has some of the best scrolling (on three levels!) I have EVER seen on the Commodore, and brilliant animation, and this gives it a good edge over some of the other fighting games. AWESOME review. They also recently launched Jack the Nipper which we previewed in the November issue. Had this been a review I would have felt obliged to give it an AWESOME rating.

Well, that's all the contenders we have at present. Though more likely choices are dropping into our laps. On the hour, every hour, it seems! Next month we will announce the winners of this year's CCI Oskars. Remember that the catagories will have changed since last year to take into account new games and new ideas. That's all from this reporter. This is Julian Rosen, in London for the December CCI, Oskar Previews signing off. (Stop looking at the camera with that stupid expression! Ed)



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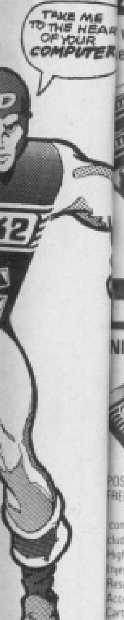
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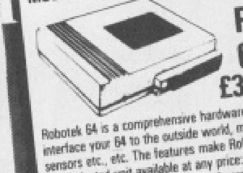

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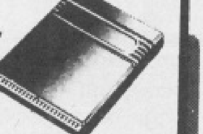

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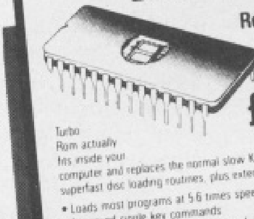

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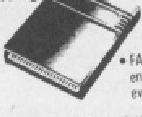

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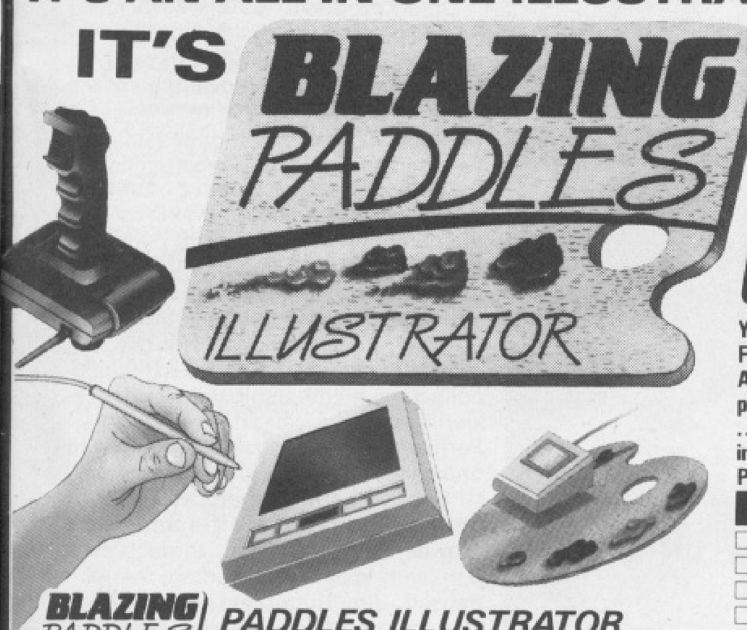

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"How do you fancy going to the L.A. Commodore Show?"

I looked up with a bemused stare (the night before still taking its toll) and mumbled affirmative tones.

"When?"

"Wednesday?"

"Great!"

They forgot to mention the fact I had to carry 250 magazines as part of my luggage... Flying into L.A. Airport — my shoulder raw from the mag-bag-luggage-strap. I kept looking about for small planes with kamikaze instincts and I was particularly relieved to hear the sound of wheels on tarmac, after the mid-air event in L.A. two weeks before.

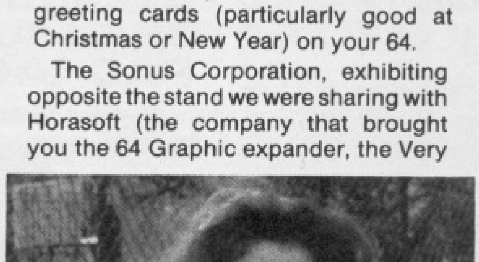
I went through the usual airport formalities and collected my bags (almost straining an arm muscle trying to pull one bag in particular off the revolving platform), hailed the Hilton bus and twenty minutes later I was looking out of a fourteenth floor bedroom windown, thinking about London Commodore Shows and how much closer Hammersmith was. The next day was the start of a two-day event organised by the WCCA (West Coast Commodore Association). I booked my alarm call so I wouldn't be late and went to sleep — needless to say I woke up at four a.m. thinking it was the middle of the day and spent the next four hours flicking between 36 TV channels.

At 9 a.m. armed with my exhibitors pass (given to me by Juan Holz of Horasoft the night before), and dragging a suspiciously heavy bag behind me, I trundled past FBI-style security men. I was finally inside the L.A. Commodore Show.

Taking advantage of the half hour before the general public were admitted, I scouted round. There were about sixty stands — all but a few a uniform 2 by 2, and crowded into this hall were names from Aegis to Zen Software. Throughout the two days there was a reasonably constant stream of people (except for Sunday morning where even some exhibitors arrived late, having taken full advantage of the Hilton's excellent bar facilities the previous evening). It was a small show but there was a lot to see.

It was interesting to observe that the people who attended the show seemed to be in the main, very keen to exploit the facilities of their 64/128 to "the max", not just its game play qualities, and that Amiga owners were in abundance. On the 64/128 side there were the now more familiar products on exhibit like GEOS by Berkley Softworks through to new products like Big Blue Reader for the 128 by S.O.G.W.A.P. (!) Software, a package which reads MSDOS files and transfers them on to the 128 — ideal if you've a Commodore PC + a 128, like us. Less serious software like Chessmaster 2000 for the 64/128 by Software Toolworks and distributed by Electronic Arts, was also popular (see Mega Review in this issue). And there were products like Printmaster from Unison World, a particularly high quality printing program allowing you to create your own signs, stationery, calenders and even greeting cards (particularly good at Christmas or New Year) on your 64.

The Sonus Corporation, exhibiting opposite the stand we were sharing with Horasoft (the company that brought you the 64 Graphic expander, the Very First and the 80 column adapter for the 128) kept the show alive with their demonstrations of "Super Sequencer 128", their multi-functional, professional mini recording system and librarian for the 128. Its reputedly already in use by top bands like Dire Straits, and kept our interest kept with their particularly attractive California-tanned demonstrators. Our magazines by the way, CCI and Commodore Business and Amiga User (remember the heavy bag?) were selling so quickly in the first half hour on the Saturday morning, that I had to hide some underneath the counter so that there would be a few at least for Sunday's lot. (Amiga World and run magazine had to give theirs away in the end).



THE AMIGA TEE-SHIRT, A HOT-SELLER AT THE L.A COMMODORE SHOW

Amiga owners had a good selection of products to see and buy. Aegis Development had their recently released package — IMPACT!, a business graphics program designed to give your presentations just that. With features like Slideshow Builder many special effects are at your disposal including Spiral in/out, Fade in/out, Random and Trickle. Details and pre-production demonstrations of the long awaited Desktop Publishing Package for the Amiga (aptly named), "Move Over Mac", were received with great interest. Doing brisk business too were RAM boards for the Amiga, and developers were snapping up memory expansion from both the market leaders — Comspec from Canada and the boys from Houston RS Data Systems.

Other products on show included Kwik-Speak 1 by Eclipse Data Management, a bi-lingual Spanish teaching package which takes advantage of the voice synthesis ability of the Amiga. In principle a great idea, though I couldn't help thinking about the Swedish cook on the Muppets as it uttered romantic Spanish phrases like "Buenos Dias". For the paraphernalia collectors, T's Me (?) from Santa Ana, California had Amiga teeshirts with Amiga, logo and "gives you a creative edge" written below and bumper stickers too. And not one, but *nine* user groups were also exhibiting, collecting membership fees and answering queries, ranging from the San Fernando Commodor User's Group to one called CACTUS.

"Speaker" and "Developer and Programmer' sessions attracted large crowds from 10.30 a.m. through to 5 p.m. with speakers including, the man himself, Jim Butterfield, speaking on ML64 and All Things Commodore.

The following Wednesday, having seen Commodoreland and Disneyland, I boarded the plane with a substantially lighter bag, a substantially heavier knowledge and understanding of the US Commodore Market and memories of California girls. . . .

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TOM RATTIGAN

CBM's Passport to the Future

CCI was invited to be the sole press representative at a "Passport to the Future" conference for Commodore's Latin American distributors held in the tropical island of Puerto Rico.

The conterence was attended by Commodore people from Argentina, Mexico, Spain, Chile, Peru, Ecuador, Costa Rica and Brazil.

CCI's Managing Editor spent some time with the leading speaker at the conference Tom Rattigan, Commodore's International President, and returned with an exclusive interview with this rarely interviewed figure of worldwide computer industry importance.

"At one time, not too long ago, the odds against Commodore were 50/50. They're a bit better now." Tom Rattigan, President of Commodore, is frank and free spoken. He does not hesitate to put the facts about Commodore bluntly even when they do not make CBM look its best. Perhaps he thinks the worst is over or maybe it is the relaxed atmosphere of the tropical Puerto Rican night that makes him so open.

Commodore's global sized problems have recently brought a greater emphasis to the Rest of the World potential which under CBM's previous leader Jack Tramiel (now at Atari) it totally failed to exploit. In those glamorous days of the home computer boom Commodore could sell all the Vics and 64's it could manufacture. So Tramiel simply shut those countries off from supplies. Now, Commodore is looking for places to sell its products and it is paying off. In Argentina, for example, arount 10,000 64's a month are being sold. Mexico has an order for 30,000 64's for bank terminals. Australia has brought 4,000 AMIGAS . . .

Taking the Commodore Challenge

"I know this region of the world. I spent four years here for Pepsicola." It is ironic that the two men in possibly the most difficult jobs in the world in computing: Tom Rattigan of CBM and John Sculley of Apple are both ex-Pepsico. Sculley is paid more — he gets over $1,000,000 a year — but Rattigan, ex President of Pepsicola, has probably the harder task. "You have no idea the screw-ups the management of this company was involved in." He is experienced as a "corporate style doctor". He took over at Pepsi when the Pepsi Challenge was to sort out a division in real trouble. He is generally thought to have succeed in putting it back on its feet exceptionally well. He insists now that Commodore "is on the way back". He points out that the company's shares which fell from $13 to $6 have now risen to the $7/8 mark. "Bank debt is down from $200 million to $130 million. Even more important though is the fact we've pushed up sales to $209 million for the third quarter. That's 58% up. The highest gain in the industry. In Europe we're 47% up. We're up 74% in unit sales!"

Relaxed and confident, Rattigan is 6 feet 3 inches and built like an American footballer. He skiis and looks a fit 35. The Puerto Rican girl secretary he had for his visit when she first saw him thought she had met the wrong man. "He looks like a film star," she told me, "not like a businessman." In reality, he is 50 and just a grandfather. And he bought his attractive wife with him. He shows no sign of the terrific financial pressures that caused him to fire one third of Commodore's worldwide workforce in December 1985. 1,500 went. The plant at Corby in the UK was closed down as was a semi-conductor plant in the US and a pilot plant in Japan. CBM also sold out of the two joint ventures. In that quarter it made a $125 million loss. "It was tough but necessary," Rattigan says. "We've turned that loss around to a profit of $1.2 million and we don't intend it to be less in the next quarter."

Get the Banks Out

"We're shifting massive quantities of product requirement out of Japan. The strong yen . . . Yes, we've got to refinance the company, but we've never missed a single payment capital or interest. Sometimes I play the baddie and bang the table and storm out but most of the banks have been very supportive." He stares at me sternly. "One British bank hasn't been very helpful. Still it should all be settled in the next few weeks. We've got to get the banks the hell out of our business!"

"We've sold 800,000 128's and 128D's worldwide. We'll get close to 1 million in the first 12 months of its life . . . We've sold 5 million computers in 2 years. In Germany IBM's got 38% of the market. We've got 28%. Research shows that no other micro manufacturer has our worldwide image of value.

Commodore is expanding the AMIGA range with a low end AMIGA which will be priced around £500 and a higher business level machine, the 2500. It is also introducing two new peripherals: a 256K Ram expansion for the 64 and 128 and a new 1200 printer, and will almost certainly launch a 3½" drive for the 64/128 range.

It will also introduce a PCAT at the end of the year. "We've sold 2,000,000 6502 units in the last year but the PC and the AMIGA now represent 30% of our CPU revenues." He won't comment on Jack Tramiel except to say with a shrug "I've seen some of the havoc he raised."

When Rattigan joined Commodore people were saying "The 64 is dead!" Yet there are still people out there for whom the 64 is ideal. Geos has by and large had a very favourable reception. In the UK the 64 has still got 20% of the home market and in the US 13%. It has paid a lot of rent for CBM."

What about the AMIGA? He leans forward and points an large finger emphatically, "When I joined the company, people were saying we'd never get the distribution or the software companies writing for it. Now everyone knows we've got the most exciting product on the market. We're selling 120,000 to 150,000 in the first year. In the Mac's first year it sold 140K . . . and Apple had a very good image . . . The AMIGA's a profit making machine for us and it is increasing in volume . . . the dumbest thing you can do is walk away from your strengths . . . It's a hell of an opportunity."

Two years from now?

"We'll be a totally different company. A host of opportunities will present themselves . . . when we've demonstrated we've gotten out of this mess."

Rattigan is a man who is clearly still enjoying the challenge he took on. He is reported to work 18 hours a day and taking 2 briefcases of work home. What will he do when he doesn't have so many problems?

He grins, "I hope it doesn't happen too soon." He must be the only person in Commodore who would say that. Which is probably why he is President and why he may be Commodore's own best passport to the future.

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BRAINBOXES

The Education on Computer Column

by Will Light

We have a selection of "Educational" software packages to look at this month which aim to help especially in revision. It is well known that computer salesmen use "education" as the main selling point in persuading parents to part with their cash when buying a computer for their child. However, when the child comes to buy software for his or her new machine, the programs which have the investment of time, programming skill and money to produce a product of real quality are far more likely to be games or business packages than those labelled "educational" It is a fact of life that public education services are starved of resources, and the software companies see little prospects of economic returns on superior educational software. So in many cases the word "EDUCATIONAL" on the package is synoymous with "RUBBISH" This is not entirely due to the lack of investment in such software. It is also because there is no clearly defined mechanism known for HOW children learn. A method which will teach one child a certain topic will fail to teach another. All CAL (Computer Assisted Learning) programs which adopt a rigid approach to teaching a topic will be doomed to failure to some extent. In any case, the majority of educational programs only set out to either give Drill and Practice in certain areas, or to test what the child has already learned from another source. A tiny proportion of programs actually claim to teach anything from scratch. Next month, I shall give a check list of points to look for when evaluating a program's educational merits, but for now, let us have a look at the latest offerings from three companies who are supporting the Commodore 64 with some "educational" software.

Chemistry 1 & 2 Age 12-16 and 14-18. School Software Ltd. (C64)

This is one of a range of programs produced by School Software, a firm based in Limerick, Ireland. They have several packages in the range. I will comment fully on the Chemistry Package, and then give brief comments on some of the others to indicate any differences.

The program is supplied on two disks, but a cassette version is said to be "coming soon".

The program loaded without any difficulty, and after a title screen and some dire warnings about the consequences of attempting to pirate the software, all is ready to begin. We were asked to enter our name and then a menu of options appeared. This offered a choice of 9 topics. Selecting a choice such as "Acids and Bases" brought forth the question, "Do you wish to see the notes?" Answering "Yes" displayed about two screens of very brief notes on the chosen topic. Then we were into the test. For that is what this program does. It tests our knowledge, rather than attempting to teach us anything. Certainly the notes we had read would not be sufficient to learn from if we had no prior knowledge. The test consists of 10 questions. For each question, we had to fill in a missing word in the sentence. If the answer is correct on the first attempt, we are told WELL DONE, and are credited with 10% on our score. If the answer is incorrect, we are told the first three letters of the answer and asked to try again. Success at this stage gives us 5% on our score. A second failure means that we score nothing and the correct answer is filled in for us. When the ten questions are completed, our final score is displayed in a table, and we can then select another topic.

The more advanced program, Chemistry 2, which caters for the 14-18 year olds, is identical except that the tests are in the form of 20 multiple-choice type questions, where we have to choose the correct answer from four possible answers on the screen. Each correct answer scores 5%, and there is no second chance. At the end of both programs, a table is displayed showing the scores in all the tests, and an option to have the table printed out on paper is offered.

The programs were robust, in that they ran correctly and did not appear to have any bugs in them, but the verdict of the teenage pupils who I consulted was that the program was less exciting then might have been. However in the CCI office, some people who never learned any chemistry at school now know some. Certainly this is a thorough way of testing 90 facts about chemistry. Purchase one of those little packets of cards which are sold as "Aids to Revision" — far more facts for much less cost! 6/10 but could do much better!

Biology 1 and 2 these are two programs which cater for the same age range, and these were identical except for the questions presented. The comments above apply to this package also.

Mapwork — (Britain-Ireland) Age 12-17 School Software Ltd. (C64)

This was a program from the same stable as the two packages discussed above. The format was somewhat different however. The program offers three tests on Ireland, three on Britain and one of a mixture of questions on Ireland and Britain. Once running it displayed on the high resolution screen two maps side-by-side. On the left is one of Ireland, and on the right, one of Britain. One can toggle back and forth from this display to the questions which are of the "fill-in-the-missing-word" variety. A flashing arrow superimposed on the map indicates the geographical feature about which the question is being asked. The questions all consist of naming features which are described in the question. I called in one of my colleagues from the Geography department to give his opinion and after being asked about the Cotswold Mountains, and being told he was incorrect in his answer, having left the apostrophe out of "Saint George's Channel", his response was "we will give that one the big E!!" I noticed some other peculiarities such as "------- is the main port in British."(sic)

Now when I was at school, Geography did include a fair bit of "naming of capes and bays", but I am told by those in the know, that this aspect of the subject is but a very small part of the work done in schools these days. However, if a test of such knowledge is required, this program could have some uses. Some kind of a "fuzzy-spelling" algorithm should be introduced if it is supposed to aid examination revision, because no examination boards penalise candidates for the odd slip in spelling so long as the answer is clear, and putting the apostrophe in the wrong place in "John o' Groats" or leaving an

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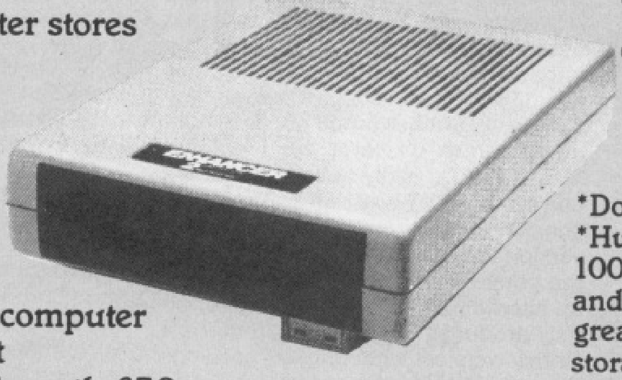

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"s" out of Potassium should not lead to the pupil being told WRONG!!! 5/10 should try harder!

Cave of the Word Wizard Timeworks Personal Computer Software (C64/128)

This aims to give practice in spelling by building a spelling test into a graphics adventure game, and we choose the character to represent us though only two are available, Mark and Becky. We have wandered into a mysterious cave, and the entrance has been sealed behind us. Suddenly the Word Wizard appears and tells us that we have to find four magic crystals which alone have the power to release us from the cave. The batteries in our flashlight are running low and to replenish them, we must answer the Wizard's spelling questions. Various obstacles lie in our path through the cave such as rocks, pools and holes in the floor, through which we may tumble, only to land unhurt on a lower level of the cave. Various nasties are out to zap us, such as scorpions, spiders and snakes. We have five bandages, or lives, and the Wizard appears now and then with another question. All standard stuff so far you may think.

It is only when the Wizard appears and actually talks to us, that we sit up and take notice. The speech is generated by clever use of the SID chip, with no external hardware being required. There are ten levels of difficulty which are claimed to cater for ages six to eighteen. Level one has words such as RED, CAKE and DOG whereas level 10 tests us on PHOTOSYNTHESIS, PTERODACTYL or SYNONYMOUS!! I only had two or three reservations about this program. One was that the musical sound effects for the character walking through the tunnels was very annoying and could not be turned off. It was also at a very high volume compared to that of the Wizard's voice, so could not be turned down without making the voice inaudible. The other slight quibble was that, feeling rather proud of myself and my progress on level 10, I entered MEDIAEVAL... only to be told that the correct spelling was MEDIEVAL. On checking with my O.E.D. I found that my version was not only correct, but it was the primary spelling, MEDIEVAL being an alternative. The program was originaly produced in America, but this is a British version with English spellings throughout and I can recommend it for use with all ages. 10/10 Excellent work!

Now to two programs from CHRONOS Software.

Maths Trek Chronos Software (C64)

This is a kind of mathematical "Snakes and Ladders" game. The screen displays a chain of boxes, numbered from 1 to 60. Our task is to progress from 1 to 60 as quickly as possible, vying either with the computer or with a human opponent. To score a certain number of moves, we have to combine three numbers, generated at random by the computer, using the operators +,-,/,*, (,and) to give the largest possible result.

For example, if the numbers were 3,4,5 we could combine them as 3+4+ = 12 or (3+4)*5 = 35 or 3* (4+5) = 27 and so on. The result of our expression is the number of places the computer moves our counter. The idea is not a bad one, but the graphics and presentation were compared unfavourably to other games by the children who tried it in my "road test" I had the feeling that they would not bother with it for more than a couple of goes. Much more motivation would be required to keep them going long enough to get any worthwhile practice in the mathematical principles involved. 4/10 Poor.

Accounts Chronos Software (C64)

This was a far more impressive offering from Chronos Software. It is designed for those studying Book-keeping and Accountancy for O-level, A-leve, CPVE or TVEI courses. It makes a point of NOT claiming to be a stand-alone teaching package. In fact the first few options selected from the comprehensive menu gave advice on how to study, what books to read, how to use them and so on. It is more in the nature of a "Computer Guided Learning" package. There are many options giving revision notes, mnemonics, worked examples, practice sessions, and tests on all aspects of Book-keeping. I am not competent to judge the accuracy of the contents of this package, but this is in the hands of the author who is a Senior Lecturer in Accounting so all should be well in that direction! I was most impressed by the programming and the presentation of this package, and it is well worth a look for anyone who is embarking on the study of Accounts, and who wishes to be guided through a course, and given some useful hints as well. 9/10 Very Good!

Competition Winners

BLINKER 64 COMPETITION

Sean D. Kane, Londonderry, N. Ireland.

C64 GAMES COMPETITION

Steve Wood, Staffs; J. Pickard, Deeside; John Young, Ayreshire; Per Johnsson, Sweden; Adrian Patterson, Dorchester; Drew McDowell, Belfast; John Manning, Rochester; J. Tyrell, Liverpool; L. Lodeiro, London; Ketan Shah, Leicester; D. A. Ashcroft, Cheshire; D. Kelham, Bournemouth; J. Dance, Sussex; John Clinton, Essex; G. Hart, Lancashire; Jason Hancock, Hants; T. Saxon, Swindon; David Rushton, Stoke on Trent; G. Ewens, Helensburgh; B. Maru, Lancs; M. Caldwell, Notts; Steve Haigh, Leeds; G. Lettington, Kent; R. Palmer, Stafford.

C16 GAMES COMPETITION

Andy Day, Stevenage; Paul Fidler, Eire; D. Leitch, Caithness; A. Hutton, Peterborough; S. Haigh, Leeds; R. Aalders, Holland; A. Badger, Essex; Philip Cheesbrough-Keswick; T. Weeks, Gwent; M. Barton, Salford; S. Braser, Bucks; M. Frantzis, London; Barry Bowman, Manchester; Olav Ankrusts, Norway; Tony Floyd, Slough; Darren Agnew, Cheshire; Joanne Douglas, Oxford; Sam Enthoren, London; R. Downey, Cheshire; Anders Willfor, Finland; F. Burgess, Lincs.

SAMANTHA FOX COMPETITION

Andrew Walker, Middx; Timothy McMahon, Sussex; Chris Garbutt, Essex; Steve Wood, Staffs; Alastair Cooper, Bucks.

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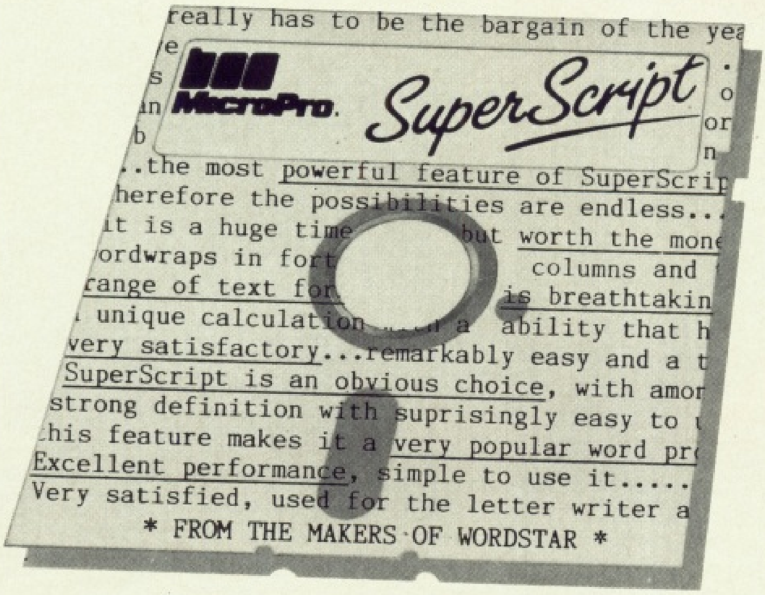

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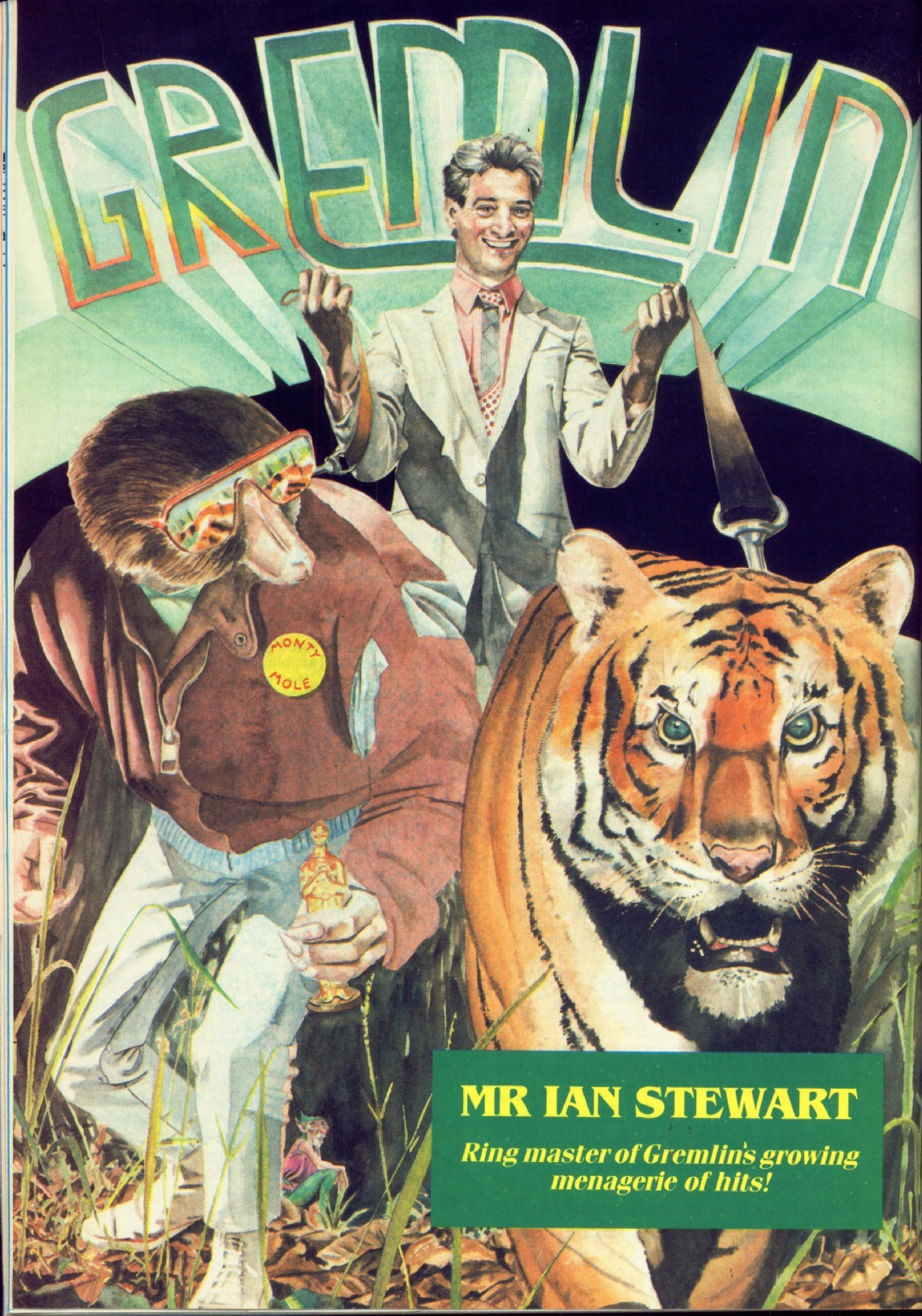
GREMLIN
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MR IAN STEWART

Ring master of Gremlin's growing menagerie of hits!

GREMLIN – The Rising Star

They say that successful organisations take on the personality of their leaders. At the Personal Computer World Show this year Gremlin had a exhibition stand for the first time. It was not the largest stand at the show but it was crisply, professionally designed with neat functional areas and staffed by attractive, efficient looking people. Crisp . . . professional . . . functional . . . attractive . . . efficient . . . words that seem very appropriate to use in describing Gremlin and Gremlin's boss Ian Stewart.

Two years ago, Gremlin was hardly known, today it is certainly among the top six UK games houses. Gremlin is now considered by many to be the fastest rising games software house in the UK, and it is also beginning to make its move internationally. It was this vertiginous rise — accomplished during a period in which many similar sized organisations disappeared down the tubes — that prompted CCI to talk to Ian Stewart about his rising star of the UK games world. Ian Stewart has just masterminded a change of design of Gremlin's corporate identity. The old cartoonish Gremlin figure has gone and an elegant, sparkling new logo has arrived. Ian Stewart's clean-cut features and sharply tailored double-breasted grey flannel suit fit the new up-to-date picture exactly. He is not a tall man but he sits erectly and speaks clearly and precisely. He gives the feeling that success is bringing him to growing self-respect. His words are forthright but his manner is modest.

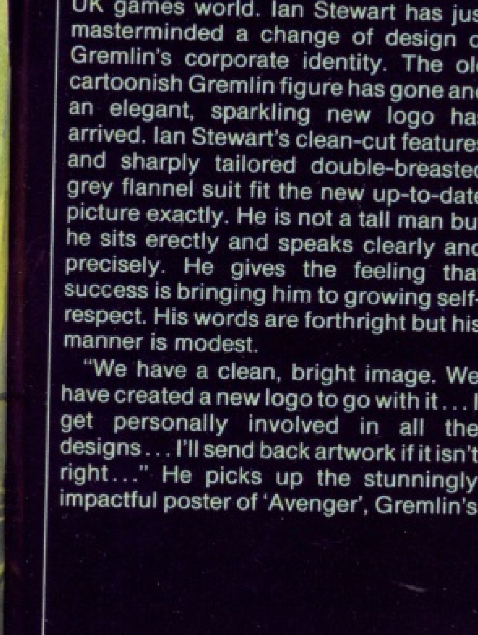
"We have a clean, bright image. We have created a new logo to go with it . . . I get personally involved in all the designs . . . I'll send back artwork if it isn't right . . ." He picks up the stunningly impactful poster of 'Avenger', Gremlin's soon-to-come release and stares at it thoughtfully. "They had to do it several times till they got it right, till they got it up to the quality I wanted". Throughout his conversation the word 'quality' is the word most frequently used.

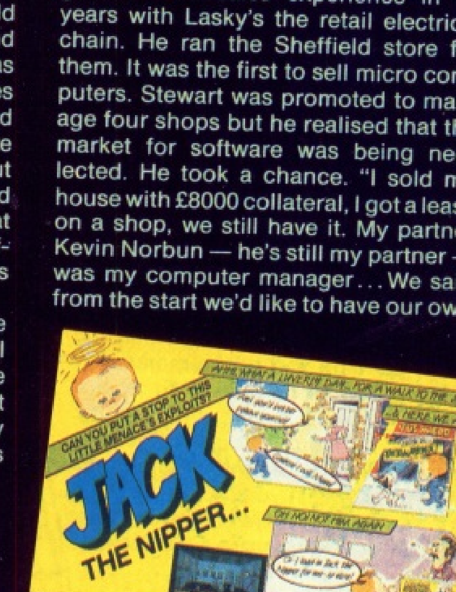
It is clear that Stewart is no figurehead but takes an active role in every aspect of the business. It has been that way since the beginning. "We launched our first product in July '84. Yes, just as we stepped in, the bottom fell out of the market . . . But when we launched 'Monty Mole' on July 29th it was a sensation. It was on every national news media . . . on News at 10 . . . on all four TV networks . . . We had three TV crews at the same time! Why? It was right in the middle of the miner's strike and we'd put an effigy of the miner's leader Arthur Scargill in the game . . . We had 13 minutes of news time, you can't buy that. We were just starting out . . . As a marketing ploy it worked very well . . . It was all based in our shop in Sheffied . . ." Ian Stewart knows what sells in the High Street. He gained solid sales experience in 10 years with Lasky's the retail electrical chain. He ran the Sheffield store for them. It was the first to sell micro computers. Stewart was promoted to manage four shops but he realised that the market for software was being neglected. He took a chance. "I sold my house with £8000 collateral, I got a lease on a shop, we still have it. My partner Kevin Norbun — he's still my partner — was my computer manager . . . We said from the start we'd like to have our own software house . . . Within a year we had it. It was a case of finding the right people . . . We had to identify talent. We found it in Peter Harrap. He was a maths student at Sheffield University. He was bored, finding it too easy. Platform games were all the rage, so we encouraged him to come up with a new game. I came up with the character, Monty Mole. That was before Christmas 1983. It took 6 months . . ."

Later on Gremlin began to employ other programmers. "Tony Crowther had a brief spell with us". It doesn't feel as if it had been particularly happy association for either party. And the US Gold link?

"Because of the shop, even when we formed the company we already had a working relationship with Centresoft" (Centresoft is the US Gold associated distribution company) "We heard about this Geoff Brown . . . As we could do with advice we invited him in as MD. It was obvious even at that time that Anne (Brown's wife) and Geoff meant business . . . We were a small company. We could have easily gone phut . . . Geoff gave us guidance . . ."

He stares hard, intent on getting his message over clearly, leaving no confusion. "But *I'm* the front man . . . He's US Gold's front man. We have a super work-

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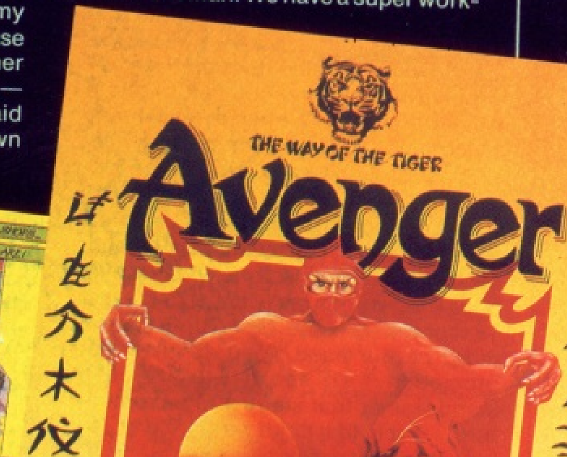

THE WAY OF THE TIGER
Avenger

GREMLIN – The Rising Star

CONTINUED

ing relationship. It works very well..." Stewart gives full credit to his team especially Kevin Norburn. "I threw everything at him... We've never had a cross word. He takes over where I leave off... I try to be an innovator... The ideas don't always come. Or they do sometimes in the middle of the night... Sometimes I wake up and make notes... I remember for Monty Mole waking up at 2.30 and trying to think of an ending. I went down thinking of a poem... Stark naked! It's that scrolling at the end... My wife thought I was crazy!"

Success has for Ian Stewart, like so many upward, mobile businessmen, cost marital breakdown and a divorce. He now has a house in Burton-on-Trent he shares with a girlfriend. The hour it takes with fast driving from Sheffield in his BMW, he finds good thinking time.

After 'Monty Mole' Gremlin's next major product was Tony Crowther's "Suicide Express". Stewart admits they had not really got themselves together. That one 'just happened'... We knew what we wanted though we didn't realise what we were building... It became obvious that we'd created a name that could go big..."

Following 'Suicide Express' we attempted to build the company around animal products. We were reasonably successful... but something was missing... We didn't have enough innovative products..."

Like all growing companies there is a point at which achievement suddenly becomes noticeable to a wide public. "Our success has really come in the last 12 months... At the 1st PCW Show we didn't have a stand. We'd done a lot of promotion... To spend £10,000 on a stand was at that stage a big expenditure... From that point we started building up our team. We've expanded to 17 programmers... by January 1987 we should have 30..."

This year Gremlin was present in force at the PCW Show. The stand sparkled with the enthusiasm of a young and lively team. "We see it should be a springboard for separate deals with Germany, Spain and other countries."

There is a number of exciting titles to be released. Gremlin is backing them with unusual ideas for 'Jack the Nipper'. They are setting up a hotline for about a 100 calls a day... "We will be seen as originators... there aren't many left ... there aren't many products like Boulder... Thing on a Spring... Trailblazer... We won't, like others, ever put our company in the position of relying on Arcade deals... Compare it to the licensing people handing over excessive amounts of money... It may take longer to develop an original product but it is 'character building'.

"The Amiga market? It's got to come... We're watching it closely... We won't be the ones to stick our neck out but we'll go in at the right level when we see the opportunities... Ambitious? I want to succeed at a high professional level. I want to be respected in the industry."

These ambitions seem already fulfilled. They have fuelled the drive that has taken Ian Stewart from shop manager to one of the most successful and respected people in the software business today. He is, as someone who knows him put it 'a nice guy' yet clearly increasingly successful. As the top man in one of the top software houses, he is also very pleasantly, living proof that in fact, in spite of the old saying, nice guys don't always have to finish second! Sometimes like Ian Stewart they can come out on top.

Ian Stewart may not intend the double meaning but according to industry sources he himself has grown in the last two years. People who know him told CCI: "He's much stronger now... much more confident... he's producing quality products. He's a straight guy, a nice guy, becoming very respected in the industry..."

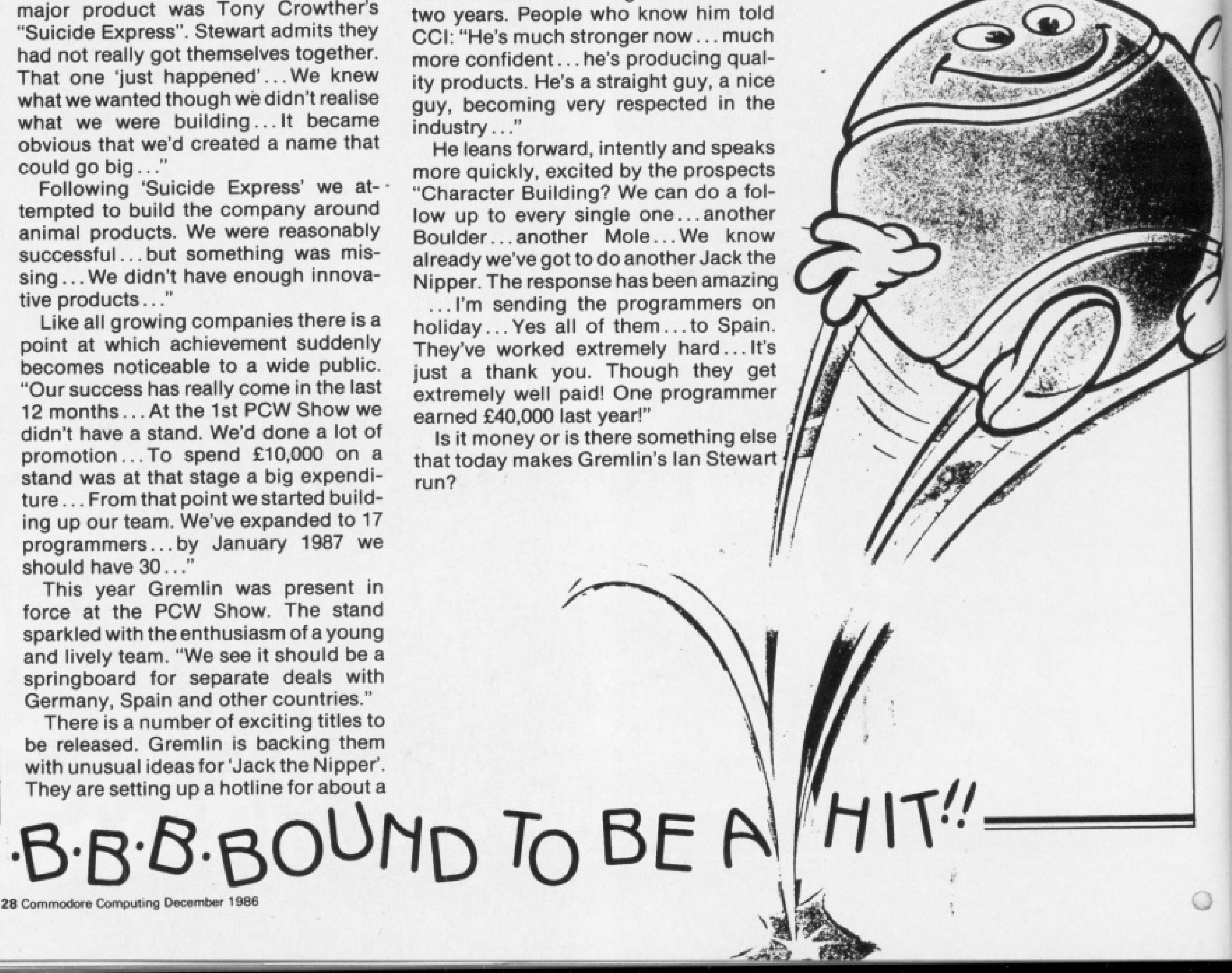
He leans forward, intently and speaks more quickly, excited by the prospects "Character Building? We can do a follow up to every single one... another Boulder... another Mole... We know already we've got to do another Jack the Nipper. The response has been amazing ... I'm sending the programmers on holiday... Yes all of them... to Spain. They've worked extremely hard... It's just a thank you. Though they get extremely well paid! One programmer earned £40,000 last year!"

Is it money or is there something else that today makes Gremlin's Ian Stewart run?

"I get the satisfaction of success... I enjoy getting up in the morning to go to work... If that stopped I'd leave the industry... I drove 9,000 miles in the last 10 weeks... I'm never totally satisfied... I say to the programmers 'It's not quite good enough'... I know nothing about programming. I never hide that. It leaves me free to put my ideas in... 'Why can't you do that?' I say, 'It can't be done' they tell me. Two days later they say 'Come here'. They love to prove themselves wrong.

Ian Stewart has proved wrong those who doubted he had the calibre to make it big. "We've probably moved faster than anyone else in the industry... We have to keep on finding the right people to keep up with our success... We've got a new Sales Director, Tony Kavenagh... Everybody's taking on new responsibilities... I believe the whole industry will have to become more professional as we have done... We're moving into utilities with our 'Discovery' range... Compliations with our Star Genus... By next year we shall be twice the size..."

Are Gremlin's programmers responsible for the US Gold big Arcade conversion 'Gauntlet'? "Yes, we're doing it for them. It's bound to be a chart smash... and we shall be writing products specifically for other countries too..."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Trackstar

An introductory MIDI Package from Steinberg. Ian Waugh gets introduced and makes some tracks.

Aren't Steinberg full of surprises? They burst onto to the scene with a very impressive MIDI program for the Commodore 64 called the PRO-16. As its name implies, it is a professional 16-track MIDI sequencing program. They went on to release lots more programs ina similar vein which made their name synonomous with professional software.

Now they've released Trackstar. No, it's not a PRO-16 Mark II, in fact, to PRO-16 users it could seem like a step backwards but Steinberg think that for many people, Trackstar will be thei first step forwards — into the world of MIDI.

Let's admit it. How many people read about MIDI, read the reviews of MIDI software and, at the end of it, are perhaps just a little bewildered by it all. Not for me, they say. No, definitely not for me. (if that sounds like you, check out our new MIDI series.)

Well, Steinberg say that Trackstar *is* for you. It hasn't been written for the professional musician and studio owner, it's been written for everyone with a Commodore 64 and a MIDI instrument. At a price of £70, Trackstar comes complete with its own MIDI interface so you've no more bits to buy — other than the MIDI connecting cables. The interface has a MIDI In and two MIDI Outs.

The manual starts by explaining what MIDI is and cuts through the jargon in everyday terms so it is easy to read, follow and understand. To make you feel even more at home, the program has been designed to operate on similar lines to a multi-track tape recorder. The main screen even shows a couple of tape spools to put you really in the mood. Time to see what it does.

Trackstar is an B-track recorder which means you can record eight individual parts and play them back all together. The eight tracks are actually divided into two sections because you can only record music on the first four. Tracks five to eight are used to control a drum machine. It is mainly a real-time sequencer which means it records as you play but you can put notes into it in step-time, that is one note or group of notes at a time.

There is only one screen which is divided into four areas and everything is controlled from it by keypresses. The tape spools are housed in the top left corner — they actually revolve during 'tape' operations. Beneath them are tracks one to four, the four music tracks. Beneath the tracks is a tape counter which ticks away in 1 beat increments. There are also play, record, fast foward and rewind indicators, just as on a tape recorder.

To the right are the other tracks, five to eight, with associated play and record boxes. This is the rhythm section and the tracks are labelled with the names of the drums they are intended to control: bass drum, snare, hihat and percussion.

At the bottom left is the track box which shows all eight tracks. Under these are bar indicators which show how loud each track is during playback. They actually display the velocity level.

The final section at the bottom right is the parameter control area. This is where you set and adjust various parameters and you'll see how much control MIDI can give you over your recording. Here you can switch individual tracks on and off and alter the velocity level of each track so you can balance the overall sound. This only works, of course, if the receiving instrument is velocity sensitive. Here you also assign each track to a MIDI channel (1 to 16) so different parts can play with different sounds.

An especially interesting and useful feature is the quantisation setting which can help tidy up timing errors. For example, with a quantisation setting of 16 a bar would be divided into 16 sections and each note played would be put onto the nearest sixteenth division. There are eight quantisation settings: 4, 6, 8, 12, 16, 24, 64 and 0. If you were working in crotchets, a setting of four would ensure perfect timing.

You can double the speed of a track on playback and you can transpose a track over virtually any range with the transpose option. Tempo is adjustable of course and a metronome ticks away to keep you in time. You can alter most of these parameters as the music is playing so experimentation is certainly the order of the day.

Finally there is an auto loop facility. This continually repeats a section which you can record over if you spot a mistake. Once you start recording you stay in record mode until the end of the loop. If you then stop playing the loop reverts to play mode. In this way you can 'punch in' to a recording until you get it right. Good, eh?

It would be rather tedious if you had to fast forward and rewind through the 'tape' to find the part you want. To save some effort you can program the function keys to take you immediately to any tape counter number. The very last box in the parameter control area displays the settings held by functions keys 1 and 3. These two keys also determine the start and end positions of the auto loop.

Recording is simply a matter of selecting a track and pressing R (or SHIFT and R to get an eight-beat count in) and away you go. The first four tracks will record polyphonic (ie. lots of notes) information. Tracks five to eight will only record one note at a time and are used to control a drum machine. Trackstar also produces its own drum sounds with a little help from the SID chip but they really are rather poor and SID is capable of far better.

To record in step-time is just as easy. The note durations are determined by the quantisation value. This must be set to the value of the shortest note as it cannot be changed during recording. Longer notes are produced by tying short notes together. Notes are entered by pressing the required keys on the keyboard. The whole process would have been far easier if you *could* change the quantisation value during recording but this doesn't detract too much from its ease of use.

Once you've got your music inside the system, there's little you can do to edit it other than with the auto loop facility. There is a copy facility to copy a part of a track to its end but you can't copy and transpose and you can't copy part of a track to another track. You need to keep an eye on the memory while copying, too, because the program will hang up if you try to over-fill it.

Complementing Casio

Trackstar complements Casio's CZ snyths beautifully. In fact, the manual devotes a couple of pages to using them with the program. It's very easy indeed to produce a four-track piece using the CZ's multi-timbral facility. The program even remembers the voice settings. It also records pitch bend but the resolution depends on the quantisation setting so if this has a low value you'll get pitch jumps rather than a bend.

All in all, Trackstar is a rather excellent introduction to MIDI. If you want all the bells and whistles then buy something with all the bells and whistles but if you don't have the clappers and the puff (bells and whistles, geddit?) you won't be able to use them. If, for one reason or another, you've had a fear or two about getting involved with MIDI then Trackstar should allay most of them. Now you've no excuse for not getting involved! For £70.00 (UK price) it's excellent value
I.W.

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FIGHTING WORDS

The Jeff Minter Page

There are not many real stars in the computer world, but among them undoubtably glitters Jeff Minter, creator of innumerable smash-hit games such as Batalyx and exciting new ideas like Colourspace.

We've given Jeff the freedom to say what he wants (libel laws permitting!), so look out for his hard-hitting pages in future issues of CCI. You may not always agree with what he says, but he's certainly worth listening to. CCI won't always agree with what he says either, but we promise to print it anyway!

Back again . . . I just finished a game on the Commodore 64, a real trip down memory lane (no pun intended) that was. The C16 is just like a VIC with a larger screen, and all those colours. A real pity the C64 hasn't got lots of colours; they do wonders for your graphics if used properly. Never mind. The Amiga has 4096, which is more than enough for any mere mortal.

Speaking of the Amiga (which I seem to be doing rather a lot just recently) there are strong rumours going around of the imminent release of a £500-odd Amiga, just as I hoped for the last time I wrote. You should know whether or not the rumour is correct before the end of the year. If nothing happens by then, go ahead and buy that ST.

Even if the cheap-Amiga does show, I don't think it will kill off the ST entirely anyway. The ST has a faster clockspeed than the Amiga and more software; it also has a VERY fast hard disk interface (as I will attest, having just become the proud owner of 20 megsworth of HD myself). But the Amiga is just . . . well, the Amiga, and as such is the most awesome all-round home micro yet seen. The ST is more business-orientated (althjough the games being produced for it are, to say the least, stunning) and may be better for some specialised applications, but for being brilliant all-round nothing can touch Amiga. And Commodore people tend to be pretty loyal beasts. That, and Marble Madness, will mean that Commodore could sell a lot of cheap Amigas to a lot of current C64 owners.

(As an interesting aside to all this, I thought you might be interested in something I saw the other day. We all know that arcade manufacturers take an active interest in the home micro market, but even so, when I went along to an open day at Deith Leisure, I was surprised to see a whole range of arcade machines painted all over with the distinctive Amiga grid-and-bouncing-ball design. I told you it was a games machine . . .)

Went to the Commodore show in Manchester the other day, it was unfortunately rather small; Commodore were there with Amigas and 64Cs. The Amiga presentation was good, but old: it was the same one they were giving last year at PCW. I tried to give a demo of Marble Madness on one hand, and I got halfway through my game when one of the verminous assistants turned off the Amiga and told me in vile tones that if I wanted to play games I should find a toyshop. Nice to find such cheerful, helpful staff manning the stand . . .

Magic Voice

One thing I got at the show was the Commodore Magic Voice unit. An odd device this; it has a limited vocabulary, but since the voice data is sampled rather than generated by phonemes, the speech quality is very high. There are 230 words, allowing you to say such things as 'my Commodore computer is terrific' (pretty useful that) but you won't be able to make it say things like 'die you filthy alien vermin' very easily. This device has long been promised by Commodore, I don't know why they didn't release it for so long. I first saw it way back in 1983. Anyway, now it's fairly cheap and does liven up a few games of Gorf (which uses the module, if connected).

It was inevitable, I suppose, but I was disappointed to see that cracked versions of Iridis were going around only weeks after its release. Now I have always maintained that hacking does a body good, enabling the hacker to learn much about 6502 code and the way the machine works; but why must it be destructive? It does peeve a man to spend five months working on something and see it ripped off straight away after. A much more distinctive form of hacking would be to crack a game, add the Hacking Screen (some of which are very artistic and clever) and then reprotect the game using the best protection the hacker can put on; then release the re-protected game as a challenge to other hackers. Then, you'd know who was good, because you'd see their mark on the game. It would be just as challenging as the usual type of hack, but much more interesting. After all, with all these freezeframe and expert cartridges going about, the art has all but disappeared from the traditional hack.

Alternatively, some Cnet-type demos would be appreciated . . . you don't have to be on Cnet to do them, and good demos get around and well-known; I spoke to some Americans on the phone the other day who had not played any of my games, but had all seen my Cnet demos DNA and Torus-II!

Anyway I shall stop now. I am off to Peru tomorrow for another communion with my favourite ungulates. Pity there isn't a large market for C64 games out there; with my Llama games I'd probably be a national hero.

Keep on thinking about that cheap Amiga: pray to Commodore. And watch the skies . . .

THE THRILLS ARE REAL!

An exclusive interview with Major 'Wild Bill' Stealey of Microprose, who is set on thrilling the whole world by making dreams come true.

What was the first computer game to be taken seriously? No, not PACMAN or SPACE INVADERS. The key word is *seriously*... No? It's a trick question... The first real computer games were not even on home computers at all. They were million dollar cockpits, specially constructed 'games' used for training aircrew, aircraft simulations. Faked environmments that gave potential pilots and other aircrew the chance to try out problems before they ever flew for real. Major "Wild Bill" Stealey trained on one to become a fighter pilot in the US Airforce.

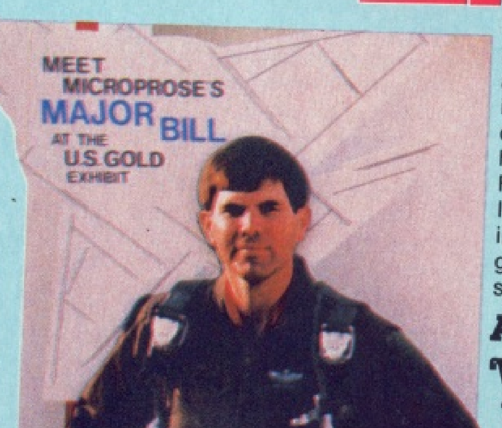
He flew, "playing with expensive toys" as he puts it for 6½ years. He is still an advisor to the Pentagon, two days a month. He is also the founder and boss of Microprose — the most successful simulation and strategy computer game company in the world. Major Bill is tall, beefy and lively. He sits tensely on the edge of his chair, his long legs bent, as if he could take off. He looks slightly uncomfortable in a grey business suit and would be more at home striding flying suited across the screen in 'The Right Stuff'. He speaks forcefully, punching his words at you like bullets. 'Pilots are gamers! Yes, they go out every day and compete with somebody else!'

He was first interested by an Atari stand up arcade game called Red Baron — a two pilot game. He met Sid Meier. 'The son of a gun beat me! How in the world can you beat me? I said I'm a fighter pilot! I understand the algohythms' he told me. 'Anyway' Sid said, 'I can do better than this in a week'. 'If you can', I told him, 'I can sell it! A week and a half later he brought me a product — Hell Cat Ace. It was a nice job, but I gave him a list of things that it needed. In 2 months he'd finished it. I ordered 100. I didn't even know what to charge for it. It was the beginning of a relationship. He's still my senior V.P. He wrote Silent Service and F15. That sold a million and a half... It's one of the ten best sellers of all time... I've had hundreds of hours on it myself... I've logged up 1000 hours on Silent Service...'

Stealey twists restlessly in his seat, gesturing as if his hand is reaching for a joystick — a real one.

'Look... all my executives play games... a couple of hours a week... I get some good ideas from them...'

While Stealey's original interests may lie in flying, his growing business empire is solidly based on technical achievement. 'We've launched 14 titles in four years. Every one of them a success. The latest is Gunship. You know how much time we've invested in that? Five man years! We've used Artificial Intelligence. We go out of our way to put in a lot of A.I. A lot of it goes into programming you don't even see on the screen!'



A simulation of Major 'Wild Bill' Stealey at this year's PCW Show.

The real Major Bill was there too!

'Gunship' is sophisticated enough for the U.S. Army to use for training its helicopter pilots. A fact of which 'Wild Bill' Steeley is clearly proud. 'It's like a *real* gunship. Giving you the real feeling'.

Though it is the reality that enthuses Stealey, he is now looking to use the quality of his products to increase their impact outside the U.S. 'Silent Service' has already reached the U.K. charts and is making an impact in other countries. 'We're not selling blobs in the sky or on

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the screen ... we've got 3% of the U.S. market and we intend to increase that. We can take advantage of the P.C. clones. We're aiming for 8—10% of market in the States. We can encourage and educate the market outside too. We can shoot for 5—8% of the market in the U.K. Financially we're very successful. Microprose has no borrowings ... no loans!'

The only time he sidesteps a question is over a rumoured split with U.S. Gold who have until now marketed Microprose products in Europe. 'We've appointed Stewart Bell UK and European Marketing Director to work with U.S. Gold. We intend to approach European markets very aggressively. We're not looking for short term profitability. We've got an opportunity in Europe as big as the U.S. We've already done the manuals in French and German ... And we've done some software miracles to get 'Gunship' on a long tape for the U.K!'

Stealey has the fervour of a religious preacher. Business may be the bottom line but he is selling more than products.

'I'm teaching the lessons of life. Wow!' He punches the air! 'I love flying. And simulations give me the chance to let others know what it's all about ... It lets you learn something about situations — and learn something about yourself! Strategy ... tactics ... Timing is everything! Everybody learns it sometime! I'm giving people the chance to do things they could never otherwise do! They can't be pilots, captain submarines, fly choppers in real life. Microprose products give them that chance! The USAF use F15's for training ... It's accurate down to the dials. The environment may be simulated but the thrill is *real*! Real!'

Stealey jumps up, ready to hurry out, relieved to be away. He will jet off into the wild blue yonder, carrying his evangelical message to other people in other countries. Never underestimate Americans like Steeley. They believe anything is possible and that makes it possible. His enthusiasm reflects a noticable trend in the game world. As the original 'computer kids' grow older they demand more sophisticated entertainments. Like simulations and strategy.

'Wild Bill ' Stealey's Microprose is grabbing for a bigger slice of the games markets for its quality level, high price, sophisticated products. CCI's sources indicate that under Stewart Bell, Microprose's newly appointed European Boss, Microprose will be increasingly independent and probably split with U.S. Gold. With the drive and determination of its boss behind it and the highly competent Stewart Bell to manage its European set up, Microprose will emerge as a growing power in the gamesworld outside the U.S.

As he turned to leave Stealey points across the room F15's been out for 3 years and we've just had the best month ever! People get tired of zapping 'em down like ... skateboards but with us you can be a *real* fighter pilot! A *real* submariner! Fly what feels like a *real* chopper! Only the environment is simulated. The thrill is *real*! Real! Real thrills.'

He throws the door back hard and stalks out.

Giving people the chance to live out their fantasies ... Making dreams come true That's a good recipe for success anytime, anywhere ... It looks like Major 'Wild Bill' Stealey's Microprose is a name that is going to become increasingly important in the world of computer games. If this were a Microprose simulation you would hear the ear-bursting roar of a jet engine and even possibly the approaching tones of the U.S.A.F. marching band playing 'The Star Spangled Banner' ... As 'Wild Bill' says 'Only the environment is simulated, the thrills are real ...'

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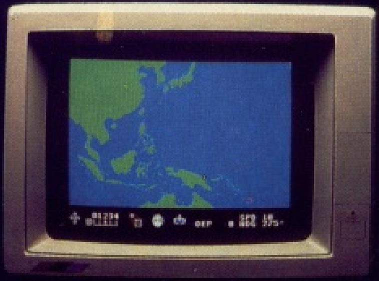
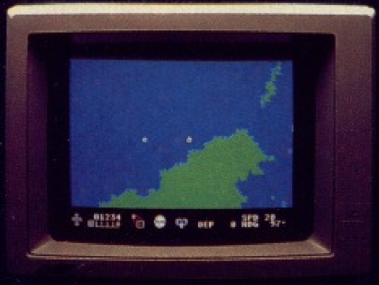
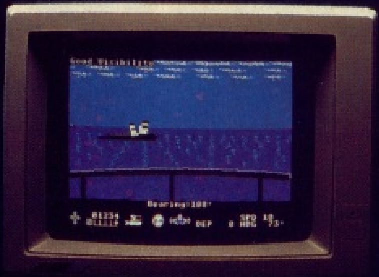


"Captain's Log, October 1, 1944, 0250 Hours. Fleet submarine USS Hammerhead proceeding Southwest at cruising speed. Our mission: intercept enemy convoy off the coast of Borneo. Disperse and destroy."

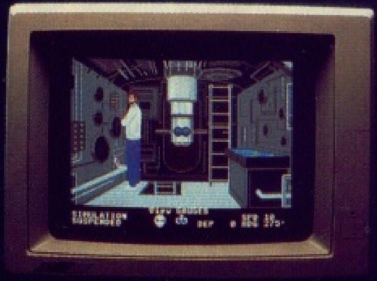
Atari 520ST screens shown



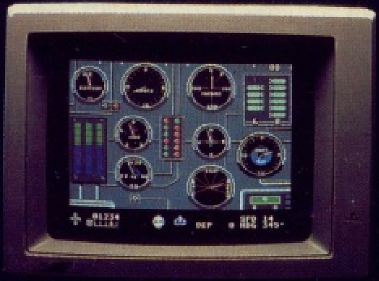
"0300 Hours. Two hours until dawn. Radar picks up convoy, escorted by two destroyers. We believe that one of the enemy's valuable oil tankers is part of convoy formation."



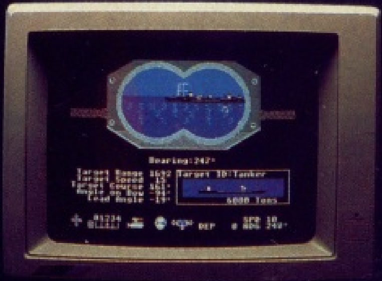
"0400 Hours. Lookouts on the bridge. Target identification party reports one tanker, 6,000 tons, troopship of 10,250 tons, with two *Kaibokan*-type escorts. Moving into attack position."



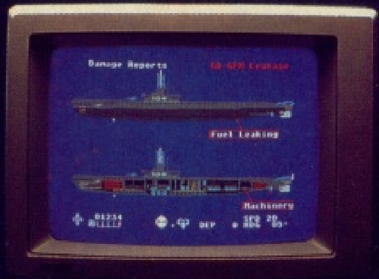
"0500 Hours. Sound General Quarters! Battle stations manned. Preparing for torpedo run. Gauge Panel OK. Periscope OK. Charts and Attack Plot Board OK. All mechanical systems OK."



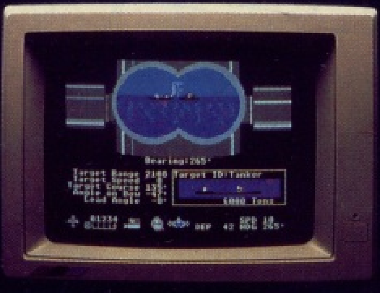
"0525 Hours. Torpedo rooms report full tubes forward and aft. Battery at full charge for silent running. We hope water temperature will provide thermal barrier to confuse enemy sonar."



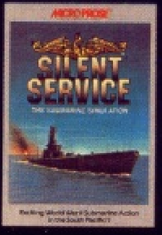
"0600 Hours. We are at final attack position. Convoy moving at 10 knots. Target distance decreasing rapidly . . . Crash Dive! Escorts have spotted us and are turning to attack! Rig to run silent."



"0700 Hours. Depth charged for one hour. Some minor damage, but repair parties at work. Destroyer propeller noises receding. We'll come to periscope depth for our return punch."



"0715 Hours. Torpedo tubes 1, 2, 3 fired. Two destroyers hit and sinking. One of the enemy's last tankers coming into 'scope view — an ideal target position. On my mark . . . Fire Tube 4! Fire 5!"



"Superb" raves Scott May in *On Line*, "strategic intensity and heart-pounding action have rarely been merged this successfully." *Analog* calls it flatly "the best submarine simulation so far." *Compute* comments "Silent Service's detail is astonishing." Join the more than 150,000 computer skippers who have volunteered for **Silent Service**, the naval action/tactics simulation — from MicroProse.

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The Walled Garden, Hyde, Chalford, Stroud,
Gloucestershire GL6 8PA.
Tel: 0453 886386.

GOING SOLO

simulation

Simulators from Microprose and others go back quite a way. We will in forthcoming issues be looking at the better simulators as they come on the market. We intend to have a substantial simulation/strategy section in CCI to give everyone the chance to sample the undoubted delights of Microprose and other products that, as Bill Steeley would put it, give 'the real thrills'. However, many of those which have been about for sometime are certainly worth considering if you have never experienced them. We decided to take a look at Solo Flight which was brought out by Microprose in 1985 but still has its fans today.

Solo Flight seems to us the ideal beginners' flight simulator. It has very useful syntheised voice instructions on the training flight which enables the novice to follow step by step in action examples of the routes that the pilot flies in the 'solo' crosscountry flights on the simulator.

We managed pretty well with the instructor's voice giving us simple commands like "You're high. Lower nose... Turn left 90° ... Increase throttle..." and so on. There is also a female voice that comes in to inform you of a weather update.

Once you have mastered the basic flight requirements, you are given solo status and permitted to try out your first solo mission.

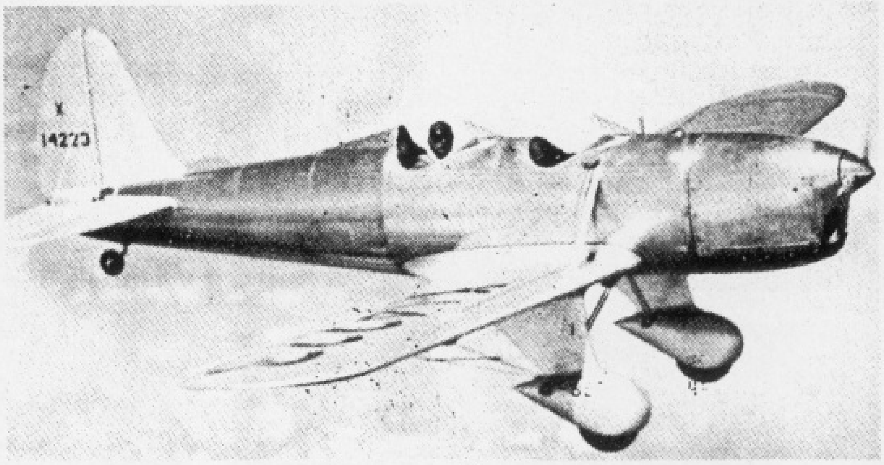
You have from then on a choice from six different American states such as Texas, Colorado etc. You fly from one town to another, landing at different airstrips which neatly appear, first as bare single lines but cleverly expand and take shape into fully fledged landing fields as you fly lower and draw near enough to see what they are. 'Let's go down and have a look' became an increasing and useful habit.

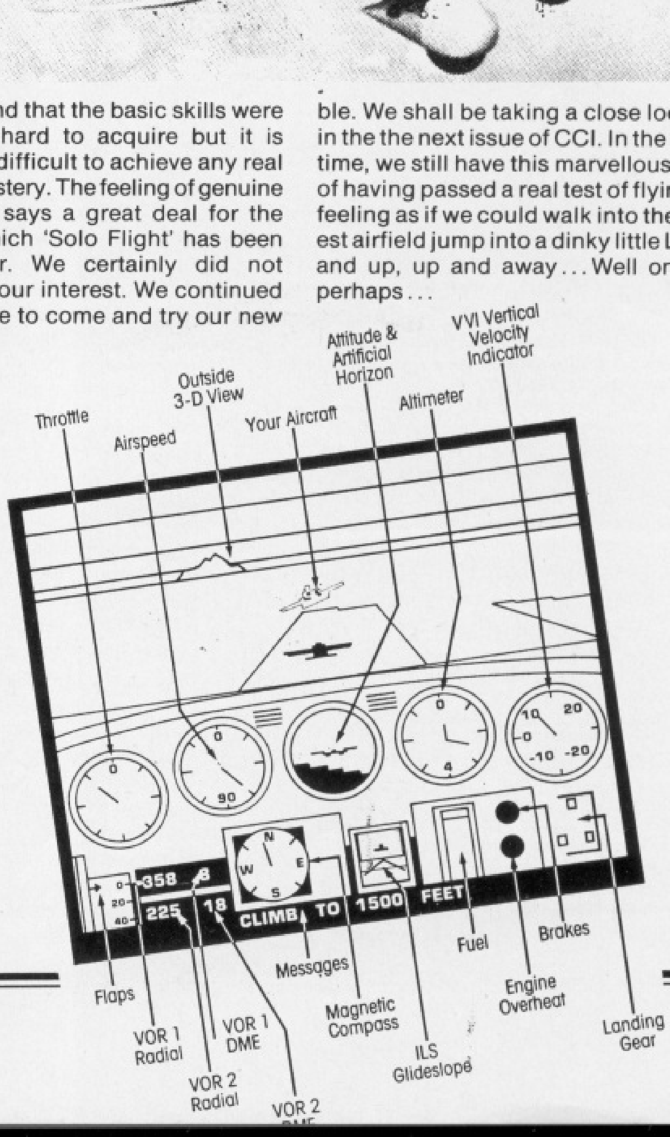
You may need, naturally, to adjust your flying course to ensure you are heading toward the correct flight path for reaching the landing strip from the appropriate angle. In more difficult situations you must allow for wind, visibility and other possibly adverse weather or geographical conditions. First you choose Training or Solo Flying, then you may select a State to fly in. After that you can take a day or night mission: flying manually or by instruments in low and normal visibility conditions. You can then take on a mail delivery mission, participate in competitive flying, pitting your piloting skills against others, or just joyriding (or it ought to be joyflying of course). In this 'Solo flight' simulation, it appears that unlike Tom Cruise in the hit film 'Top Gun' you cannot dive and buzz the unfortunate female voiced occupant of the control tower. Shame!

As you can see we got quite involved with the superior feelings that flying gives you — even in a simulated situation. We found that the basic skills were not terribly hard to acquire but it is rather more difficult to achieve any real degree of mastery. The feeling of genuine involvement says a great deal for the skill with which 'Solo Flight' has been put together. We certainly did not quickly lose our interest. We continued for some time to come and try our new ideas and see if we could get to the landing strips with ever smoother technique. (We didn't always succeed and occasionally it ended with another air disaster!)

If you want a really top notch and highly demanding flight simulator of the same kind but considerably more manoeuverable and competitive, try *Aerojet* from the same Microprose stable. We shall be taking a close look at it in the the next issue of CCI. In the meantime, we still have this marvellous sense of having passed a real test of flying and feeling as if we could walk into the nearest airfield jump into a dinky little Learjet and up, up and away... Well one day perhaps...

A.M.





EUROPE ABLAZE

Strategic Simulations

"How to feel like a milltary leader in times of war and peril"

What is a game that doesn't take five minutes of hectic joystick button bashing, may present you with static scenes and virtually an absence of sound, and yet entrances hour after hour, week after week, even month after month? No it isn't Donkey Kong, it is the strategic simulation, probably thought of by most people as a war game.

War games can be as complex and demand such attention that you can be drawn and practially hypnotised into an almost total dedication to your efforts. You may find you can be locked to your computer to the detriment of every other aspect of your previously normal life. One CCI reviewer, who shall be mercifully nameless, admits to failing a school exam because he spent not just the weeks before, when he should have been revising, playing (or rather being played by) SSI's Knight's of the Desert, but the very night/early hours of the a.m., glued loyally to his Axis Command (he still thinks, occasionally, we believe, that he actually IS Rommel!).

Nothing (nothing? — ed) seems to chain computer games players so securely to their screens as strategic simulations. Once you have contracted this particular disease, you are lost beyond redemption. We advise you that if you have a friend who is a sufferer, don't go near him or even her at night, and above all *never, never* sit next to a 'simmy' (a strategic simulations addict) at the computer! Groans of agony as the commander sees forces destroyed mingle with yelps of delight as victories are hard won amidst the multitudes of half-full coffee cups and nearly-empty bags of crisps, mouldering in the remains of last week's baked beans. BEWARE. This could happen to YOU!

As we believe consenting adults (or kits for that matter!) can perform any activity they choose with a computer, we are going to present information from our investigations into this epidemic which is beginning to attack more and more of the populations every day, by telling you in a new section called Strategic Simulations.

We are beginning by taking a look at some games from a new company (to Europe at least) from Australia, Strategic Studies Group. Don't be put off by the name; it does require close study but not of the academic nature. The first batch of products we received were:

Europe Ablaze
Carriers at War
Reach for the Stars
and Battlefront

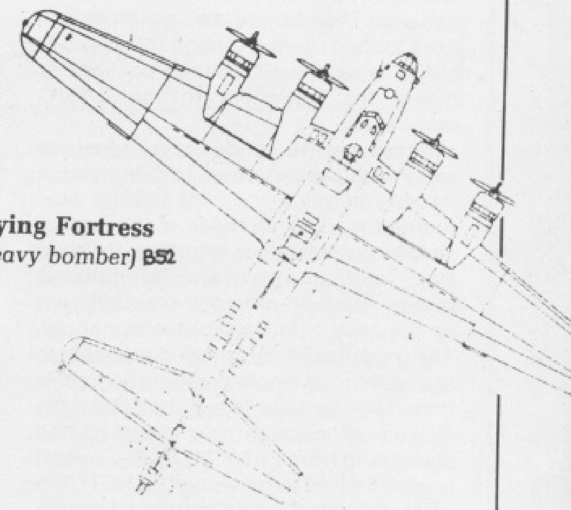
We have to say that we are very impressed by the extremely thorough documentation and packaging. It is of a standard that is rarely seen in a game and should be good enough to cover a real war, let alone a simulation. Whilst not cheap, the games are clearly intended to provide long-term entertainment and to stand up to the treatment of months of use.

Europe Ablaze was the first we looked at. As you will have gathered from the introduction of this article, the addictive qualities of this kind of game captured us immediately, so you will have to wait for a future issue for information on the rest.

Europe Ablaze has three different scenarios. "Their Finest Hour" — the Battle of Britain in 1940, "Enemy Coast Ahead" — Bomber Command Strikes by Night in 1943 and "Piercing the Reich" — the Eighth Air Force Turns the Tide in 1944.

You can take command of either the Axis or Allied forces on offensive or defensive in each scenario.

You start by selecting which units of your forces you will be controlling, or to be controlled by the computer, or merely to remain inactive. This is just the beginning. From then on you have to consider such aspects of planning, counter-planning, and even counter-counter-planning the enemy's next move. The really crucial element is obviously issuing the most advantageous orders to your forces in the air and on the ground, including anti-aircraft defences. This is the activity that demands the highest level of cunning and skill you possess. You must get it right, even first time, for the fate of nations rests in your very own hands. As you tap the keys in Europe Ablaze, you have the responsibility for the lives of millions including, no doubt, those of your own.



Flying Fortress
(heavy bomber) B52

We found Europe Ablaze (and we are still unsure of the final result with *US* fighting the war!) to be of huge potential fascination. Its depth and complexity and the sheer enjoyment of the challenge it offers — are fully deserving of a substantially more complete examination than we have been able to give it so far. (Which I suppose means you want to go home for three months to play it. Eh? Well, you can forget that! Ed.)

We can say that anyone who has passed some distance out of the merely infantile shoot 'em up phase is likely to find Europe Ablaze a good example of the kind of game that will make all other problems of the world seem relatively unimportant. Excuse us while we return to our Command!

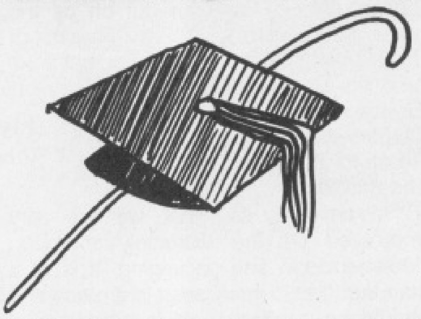
"Scramble! Squadron zero-four-seven; raiders at 12 o'clock high! Tally-ho! Tally-ho!"

A.M. and J.R.

Contact: Strategic Plus Software, P.O. Box 8, Hampton, Middlesex JW12 3XA. Tel: 01-979 2987.

PLUS/4 SPECIAL

EASY TUTOR



The **EASY TUTOR** package from TRI-MICRO is a BASIC tutorial piece for use on the PLUS/4. No attempt is made to cover the components of BASIC specific to any Commodore machine, the product adheres closely to relating the elements of Commodore BASIC in general. Thus sound and graphics are not touched upon although this is probably a wise move since the package is meant for beginners to the BASIC language.

There are 10 modules or sessions which are broken down into individual lessons about a topic of BASIC programming. The modules make use of simple but effective graphics to illustrate a particular point and the emphasis is very much on *sitting at the keyboard* as opposed to nose-deep in a manual. The total number of screens available to the user in the whole package is greater than **180**! So it is likely that even the slowest of learners must have gained something from **EASY TUTOR** — even if it were limited to pressing the RETURN key at the appropriate moment. I particularly liked the option of being allowed to select the module of **my choice** rather than being directed in strict sequential fashion — a plus point since we all have different learning curves.

The first two modules covered the basics (no pun intended!) of BASIC and were concerned with how the computer is organised, variables, the list, run, print and shop commands. Modules 3 and 4 looked at multiple statements, screen character formatting and the built-in functions. By the time modules 5 and 6 were reached, the user would be feeling fairly confident at BASIC although, not as yet ready to produce anything serious in the way of programming. These two modules moved things up a gear and introduced the conditional and loop concepts, thus IF/THEN and FOR/NEXT received a thorough grounding. At modules 7 and 8, the heat is really on and arrays and subroutines are extensively examined. In fact these two modules had over 50 screens between them — and indication of their fundamental importance to BASIC programming and why it is necessary to understand fully the uses and properties of these topics.

Module 9 seemed to slacken the pressure slightly by introducing the various string handling functions such as LEN, MID$ and VAL and then suddenly turned the heat back up by leading you into a concatenation of strings. Of course this was only a prelude to module 10 which was innocently titled "*Applications of Matrices*" and demonstrated a detailed practical application involving arrays and subroutines.

Basic in Software

Not every single element of the BASIC language was covered, for example the use of DATA statements and PEEK, POKE and USR were ignored. However, I would expect to see a follow-on disk after the undoubted success of this product. The other benefit that **EASY TUTOR** offered over its competitors was the use of BASIC for the software itself. This meant that the really keen learners could list the modules out and see an object lesson in screen design and user input techniques at first hand in BASIC. They could also serve as a useful basis for the purchasers own software ideas. Another benefit offered by this approach of using BASIC in the product was the considerable advantage that the user did not have to spend hours typing in the program and meet our old friend "?SYNTAX ERROR IN 123".

Readers should be able to detect a note of enthusiasm in this review for the **EASY TUTOR** product. My reason for this is explained by the often overlooked fact that there are an awful lot of users of Commodore home computers who having tired of only games would like to learn programming, but for one reason or another cannot apply themselves to the conventional teaching environment of school or college. There is also the nost inconsiderable number of users who bought a Commodore home computer to learn programming. Each of these groups represents a serious market opportunity for an enterprising software house — but for once PLUS/4 owners have the upper hand and can start learning to program in BASIC immediately with **EASY TUTOR**.

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14072 Stratton Way.
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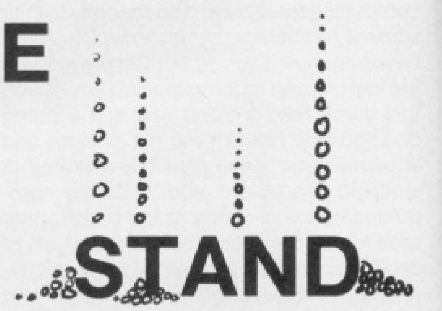
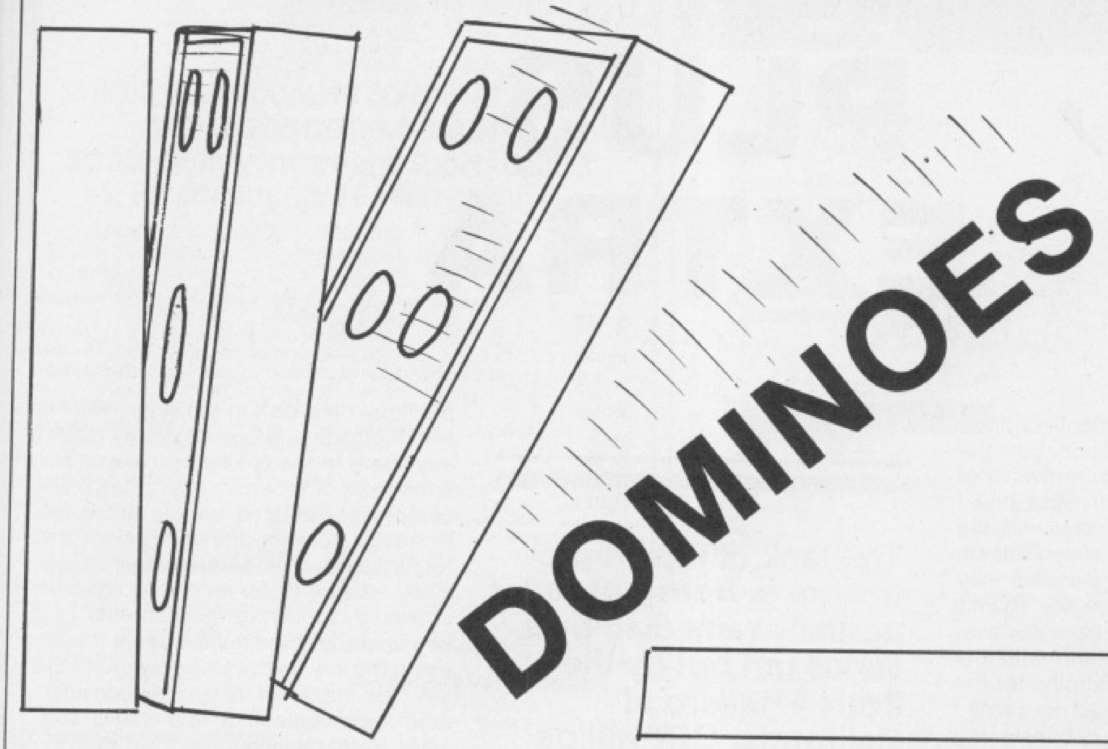
USA.

LEMONADE STAND



This game has initiated many a journey down the road of microcomputers and has an interesting history. I believe that LEMONADE STAND started off in Canada in the late seventies and was used extensively in the educational field on the now defunct Commodore PET. The original was a public-domain piece and has now been translated to the PLUS/4 by Tri-Micro. The basis of the game was to teach the elements of operating a small business, in this instance a stall selling lemonade during the summer months. Essentially the crux of the simulation demonstrates the vagaries of the elasticity of supply and demand and provides a cogent demonstration of the effect of uncontrolled influences — in this case the weather, since no one is interested in purchasing a refreshing glass of lemonade on a cool, rainy day!

Thus the player has to balance off stocks of perishable raw materials (lemons) against projected sales, keep close control over those materials which must be bought in large physical quantities (cups) and hence avoid storage prob-



DOMINOES

The game of dominoes is old, having originated in China before the Christian era. Let me announce myself as a player of some repute of this ancient pastime during my college days. In between the lectures on nuclear-magnetic resonance, atomic-absorption spectroscopy, organic polymers and other such long forgotten topics of industrial chemistry, I would spend many a happy lunchhour accompanied by my fellow students and conspirators in the pubs of Newcastle studying the more immediate demands of the game of dominoes.

Thus having learned the finer points of this game in a gambling school of no mean repute, I felt amply qualified to review this software piece.

The software is single-user, that is the machine must be a partner and there are several options for setting the winning target. For example, a quick game would be the selection of the first one to reach 100 points. The graphic display of the dominoes themselves was good, although there were some peculiar effects when the domino line reached the screen edge and had to turn through 90 degrees. Nothing detrimental, just a peculiarity of the display. One big (dis?) advantage of playing a computer in games of this nature is the complete elimination of cheating — as if I would!

However, I'm pleased to report that despite strenuous efforts on the part of the PLUS/4, I won several games with one memorable episode where I had the machine holding 13 dominoes because I was holding the last 2 and the last 6 — memories are made of this . . . It would be nice to have been able to have a printout of each game to study where I went wrong, but I'm probably trying to turn a game into a science. I really did enjoy reviewing this software and despite all this high-tech 68000 hardware that now languishes in the Donald workroom, I still sneak the odd game in when the wife is not about.

B.D.

Supplier: TRI-MICRO Inc.
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USA.

lems. Finally, the all-important question of selling price is governed by experience and an assimilation of possible effects such as weather forecasts and the competition. It is not as I first assumed, one of those educational/school games that seem to abound in unreal trivialities and I found LEMONADE STAND to be very absorbing and entertaining. A compliment indeed from the normally hard-bitten Donald and it was not difficult to see why this simulation was extremely popular and successful.

This implementation for the PLUS/4 takes advantage of the enhanced graphic facilities of the machine over the original PET version. Some may say that it has been made easier since you can build a historical database of sales/raw materials, sales/temperatures, etc., and refer back to this to enhance the decision making process. I do not think this is a valid criticism since it is left to the player to decide whether or not to act on the basis of the historical data — exactly the same process as that in any business, assuming of course that they have maintained accurate records. The graphical display takes the form of a bar chart and thus the data is quickly assimilated. It would have been nice to have been able to print this out, even in a non-graphic format. This would allow comparisons between different players and also speed up the decision-making process.

Excellent use was made of the sound and graphics capabilities on the PLUS/4 and the simulation proceeded at a very fast pace considering it is written in BASIC. Although I suspect that there are some machine code enhancements. Compared to the current generation of microcomputer simulations such as SPINDIZZY, ELITE and MARBLE MADNESS, LEMONADE STAND proves that you do not have to be state-of-the-art in order to ensure long-term success. I'm sure that in 20 years time even such low-tech items as skipping ropes and roller skates will still continue to enthrall and captivate the young, despite the advances made in microcomputers. I'm also happy to bet that LEMONADE STAND will also be around, complete with 3-D holographic images of the customers and synthetic oleofactory sensations from the lemonade.

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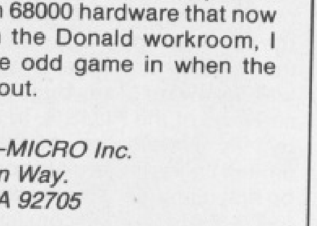

PLUS EXTRA

The lack of Plus/4 programs is being at least partially remedied by a series put out by the lively TriMicro of California. CCI will be reviewing some of these interesting programs over the forthcoming issues.

PLUS EXTRA is a suite or collection of programs designed to enchance the capabilities of the built-in software of the PLUS/4. I need hardly add that I have been less than impressed with the *'3 + 1'* software and have stated this on many occasions in CCI. Readers may recell that I had removed the ROM's containing this software from my own machine and replaced them with the SCRIPT PLUS ROM's. Happily, for the purposes of this review I had not carried out my original intention of consigning these ROM's to the dustbin and refitted them. The screen display revealed that *'3 + 1'* was still available on F1, so the PLUS EXTRA disk was inserted into the 1571 and loaded into the PLUS/4.

There are 3 parts to this package, the first being a much enhanced database or in *'3 + 1'* terminology the *'File Manager'*, an expanded version of the word processor and finally a software update or *'fix'* as they are known in the trade for the *'3 + 1'* package overall. I was intrigued by this latter program since I was not aware of any bugs in the built-in software of the PLUS/4. In all probability, my examination of this has been limited by the degree of shock I received on first using *'3 + 1'*. However, according to Tri-Micro the bug consists of the system entering an 'infinite loop mode' whenever more than 255 records are present in the File Manager. Apparently a record will be printed over and over without progressing any further down the file. Please stand up and take a bow the fearless individual who had the time and patience with *'3 + 1'* to spot that particular bug! This update should be loaded in each time you wish to use the built-in software — and yet another opportunity for those who can program the PLUS/4, i.e. provide a routine to boot this in from the disk on power-up and see it published in CCI.

The enhancements to the *'File Manager'* were quite extensive and turn this into a useful option. The sort facility is much improved and considerably faster. This now operates in a different manner to the original sort command with a *truncation* extention to keep record field contents to a minimum during sorting and hence increase the throughput by reducing the amount of disk access. The *transfer* command will create a standard sequential file from a *File Manager* file allowing complete portability of data within Commodore machines. This is a very powerful facility since it also allows the reconstruction of either damaged files or the database itself. For example, assume that you wanted to add another field to the middle of each record. Normally this would have meant printing out the entire database, redefining a new database with the new field and then tediously re-entering via the keyboard each record. By using the sort and *merge* command, a sequential file can read into your new database, viola!

Other commands that make your database management easier include *delete* which removes unwanted word processor and spreadsheet files that were created with *'3 +1'* from the same disk. *Oldfm* will format a new data disk and duplicate the field names and record structure in terms of length from the previous data disk in the drive. *Repeat* will duplicate a reference or key record anywhere in the file on a single record and range of record, whilst *crunch* will compress all deleted records on the disk tro restructure the file and make room for further records. *Makekeyfield* creates a key field for faster record access with *showkey* displaying the contents of a key field file. *Findkey* searches the file using the key field, *loadkey* will load the key field file. All of these are a considerable improvement on the native software. *Setbam* will recover the disk to the correct BAM whenever you have performed a COLLECT or VALIDATE on your data disk, an invaluable command.

The expanded Word Processor module provides further useful commands. These commands can be toggled on or off although when activated the access to the database is restricted. The commands relate to the maximum of 99 lines that can form a word processing file and the screen display. Files can be linked or coupled together, albeit temporarily, for viewing or printing. Special character requirements such as underline, bold, etc., can now be viewed in reverse video together with indents and margin justification. The PLUS EXTRA disk also contains the disk backup and format programs as found on the PLUS GRAPH disk.

Quite simply these are all facilities that should have been present in the *'3 + 1'* package from the start — however, that is now history. PLUS EXTRA succeeds handsomely in achieving what it set out to do. It makes the software of the PLUS/4 more useful and changes the perspective of this unfortunate machine. Perhaps, PLUS/4 owners will now take heart and start using their machine — more power to Tri-Micro's elbow, let's have more from this source.

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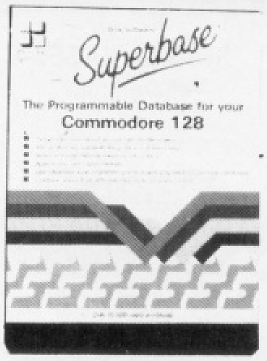

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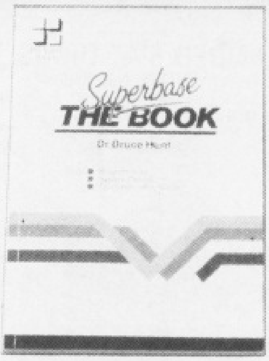

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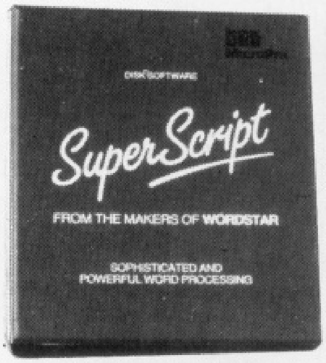
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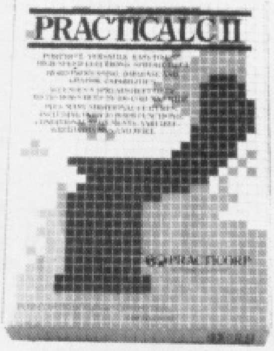

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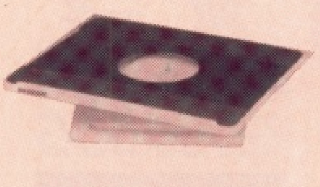

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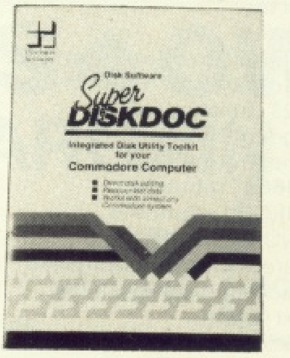

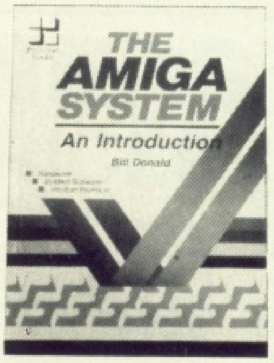

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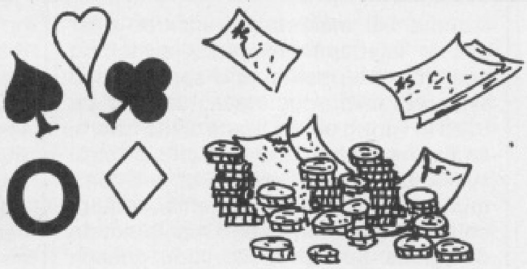
PLUS /4

Yet more on the Plus/4 for the insatiable readers of CCI and fans of the Cinderella machine. I have compiled the memory map of the PLUS/4 from a variety of sources and whereas most I have seen are inaccurate or so full of holes, they would qualify for a swiss cheese award, this cap is based on information to hand in early March 1986. I have used the Commodore lables for memory locations and would ask readers bear with me on the odd locations that have no explanation as to purpose. I will have these annotated after further research. A lot of location bit settings perform inthe same way as those onthe C64, so some familiarity with this machine's architecture will be of value. Note that C16 addresses will be functionally identical although please do not hold me to that since I do not have a C16. There is perhaps even more similarity with the C128, but beware that a lot of locations do not line up in terms of the map, although the functions will be identical.

ICRNCH	0304-0305	772-773	Vector for interpreter code
IDFLOP	0306-0307	774-775	Vector for convert to text (list)
IGONE	0308-0309	776-777	Vector for execute the keyword
IEVAL	030A-030B	778-779	Vector for evaluate expression
IESCLK	030C-030D	780-781	Vector for esc. conversion routine
IESCPR	030E-030F	782-783	Vector for escape list
UESCEX	0310-0311	784-785	Vector for execute escape
ITIME	0312-0313	786-787	Interrupt ventor for TIME
CINV	0314-0315	788-789	Vector for IRQ routine
CBINV	0316-0317	790-791	Vector for break entry into monitor
IOPEN	0318-0319	792-793	Vector for Kernal open routine
ICLOSE	031A-031ZAB	794-795	Vector for Kernal CLOSE routine
ICHKIN	031C-031D	796-797	Vector for Kernal CHKIN routine
ICHKOUT	031E-031F	798-799	Vector for kernal CHKOUT routine
ICLRCH	0320-0321	800-801	Vector for kernal CLRCH routine
IBASIN	0322-0323	802-803	Vector for kernal IBASIN routine
IBSOUT	0324-0325	804-805	Vector for kernal IBSOUT routine
ISTOP	0326-0327	806-807	Vector for kernal STOP routine
IGETIN	0328-0329	808-809	Vector for kernal GET IN routine
ICLALL	032A-032B	810-811	Vector for kernal CLALL routine
USRCMD	032C-032D	812-813	Vector USR command
ILOAD	032E-032F	814-815	Vector for kernal LOAD routine
ISAVE	0330-0331	816-817	Vector for kernal SAVE routine
FREE	0332	818	Free for user
TAPBUF	0333-03F2	819-1010	Tape buffer
WRLEN	03F3-03F4	1011-1012	Length of data to be written to tape
RDCNT	03F5-03F6	1013-1014	Lenght of data to be read from tape
INPUQUE	03F7-0436	1015-1078	RS232 inputy queue
ESTAKL	0437-0454	1079-1108	Tape error log
ESTAKH	0455-0472	1109-1139	Tape error log
CHRGET	0473-0478	1139-1144	CHRGET subroutine
CHRGOT	0479-0484	1145-1156	CHRGOT subroutine
QNUM	0485-0493	1157-1171	QNUM subroutine
INSUB	0494-04A1	1172-1185	Shared ROM fetch subroutine
ZERO	04A2-04A4	1186-1188	Numeric constant for BASIC
INDTXT	04A5-04Af	1189-1199	Text pointer
INDIN1	04B0-04BA	1200-1210	Index and Index 1
INDIN2	04BB-04C5	1211-1221	Index 2
INDST1	04C6-04D0	1222-1232	String 1
INDLOW	04D1-04DB	1233-1243	Lowtr
INDFMO	04DC-04E6	1233-1254	Facmo
PUFILL	04E7	1255	PRINT USING fill symbol
PUCOMA	04E8	1256	PRINT USING comma symbol
PUDOT	04E9	1257	PRINT USING decimal point symbol
PUMONY	04EA	1258	PRINT USING monetary symbol
TMPDES	04EB-04EE	1259-1262	Temporary storage for INSTRING
ERRNUM	04EF	1263	Last error number
ERRLIN	04F0-04F1	1264-1265	Line number of last error
TRAPND	04F2-04F3	1266-1267	line to go on error
TMTTRP	04F4	1268	Temporary storage of trap number
ERRTXT	04F5-04F6	1269-1270	Pointer to text to error message
OLDSTK	04F7	1271	Stack pointer for error trap
TMPTXT	04F8-04F9	1272-1273	Temporary storage for DO LOOP
TMPLIN	04FA-04FB	1274-1275	Temporary storage for DO LOOP line number
MTIMLO	04FC-04FD	1276-1277	Table of pending jiffies
MTIMHI	04FE-04FF	1278-1279	Table of pending jiffies

USRPOK	0500	1280	USR jump
USRADR	0501-0502	1281-1282	USR jump address
RNDX	0503-0507	1283-1287	Initial value for RND function
Banking Jump Table			
	FCF1	64753	JMP to cartridge IRQ routine
	FCF4	64756	JMP to Phoenix routine (autoboot ROM)
	FCF7	64759	JMP to Long Fetch routine
	FCFA	64762	JMP to Long Jump routine
	FCFD	64765	JMP to Long IRQ routine
	FD00-FD0F	64768-64783	6551 ACIA
	FD10-FD1F	64783-64799	6529 Parallel Port
	FDD0-FDDF	64976-64991	ROM Bank Select (write only)
	FE00-FEFF	65024-65279	1551 Disk Drive Interface
	FF00-FF1F	65280-65311	8360 TED Input/Output Control
	FF3E-FF3F	65342-65343	Select ROM or RAM (write only)
Unofficial Jump Table			
	FF49	65353	JMP to function key define routine
	FF4C	65356	JMP to Print routine
	FF4F	65359	JMP to Primm routine
	FF52	65362	JMP to Entry routine
	FF80	65408	Release number of Kernal ROM (MSB for NTSC=0 PAL=1)
Kernal Jump Table			
CINT	FF81	65409	Initialise screen editor
IOINIT	FF84	65412	Initialise I/O devices
RAMTAS	FF87	65415	Test RAM
RESTOR	FF8A	65418	Restore vectors to original values
VECTOR	FF8D	65421	Change vectors for user
SETMSG	FF90	65424	Control Kernal Messages
SECMD	FF93	65427	Send secondary address after LISTEN
TKSA	FF96	65430	Send secondary address after TALK
SAREG	07F2	2034	SYS command: accumulator
SXREG	07F3	2035	SYS command: X register
SYREG	07F4	2036	SYS command: Y register
SPREG	07F5	2037	SYS command: stack pointer
LSTX	07F6	2038	New key detect
STPDSB	07F7	2039	Flag to disable CTRL-S pause
RAMROM	07f8	2040	Most significant bit for monitor fetches 0=RAM 1=ROM
COLSW	07f9	2041	Most significant bit for colour/luminance 0=RAM 1=ROM
VMBMSK	07FB	2043	VM base mask for split screen
LSEM	07FC	2044	Motor lock semaphore for cassette unit
PALCNT	07FD	2045	PAL time-of-day counter
FREE	07FE-07FF	2046-2047	For users purposes
TEDATR	0800-0BFF	2048-3071	Colour memory
TEDSCN	0C00-0FFF	3072-4095	Screen memory
BASBGN	1000-FFFF	4096-65535	Start of BASIC text
GRBASE	2000-FFFF	8192-65535	Start of BASIC when graphics on
BMLUM	1800-1BFF	6144-7167	Luminance for bit-map screen
BMCOLOR	1C00-1FFF	7168-8191	Colour for bit-map screen
CHRBAS	D000-D7FF	53248-55295	Character ROM

PLUS CASINO



Oh dear, this could get me into more trouble with the domestic authorities — yet another gambling game for the PLUS/4 — this is the second in just one week Mr Editor! Is this a poorly veiled effort to corrupt my very well known high moral standards he asks? At least I can claim innocence on the contents since neither casinos or betting shops have ever formed part of my social scene.

PLUS CASINO, as the name implies is based upon what passes for entertainment in professional gambling establishments and is designed for use on the PLUS/4. There are three elements to the software — **roulette, craps** and **horse-racing** — although obviously the latter is not part of the usual casino scene (or so the Editor who has vast experience in these matters sagely informs me).

The software is able to cope with multiple users and operators on a menu selection of the game of your choice. Having selected your evil pastime, the system then loads this in from the disk. The **horse-racing** option starts the user off with an initial stake of $2,000 and provides several horses at varying odds for the users selection. The odds seem strangely at variance with day-to-day reality and figures such as 6-1 and 10-1 must bring forth tears of nostalgia amongst the betting fraternity and howls of derisive laughter from the *bookies*. After selection of the amount to be wagered and the horse, the game then moves to a graphical representation of the racecourse. Unfortunately, the limitations of the hardware prevent anything more than a simple chase across the screen. The usual outcome of my own selection proved that my own knowledge and judgement of horseflesh is on a par with my appreciation of the finer points of advanced brain surgery.

Roulette seems a more likely choice —at least I feel at home amongst a number-orientated game! Success at this option seemed much easier and I actually managed to reach the point of *breaking the bank* before being caught by the wife — *"I thought you were supposed to be writing about transputers —is that all you have been doing all day?"* she cried at 280dB as she gave me the gamma-ray glare turned up to maximum. The unfortunately named **craps** is a game about which I freely confess to know asolutely nothing and **PLUS CASINO** did little to clarify this state of affairs. It appears to be based on throwing two dice and depending on the numbers which come up determines if you have won or not. No doubt our US readers will feel at home with this option since for some reason this game seems rarely to make it across the Atlantic Ocean. Seemingly Europeans historically like more spectacular and bloodthirsty forms of gambling — after all we invented cock-fighting, bear-baiting and bull-fighting.

Overall, **PLUS CASINO** represents good value for money in terms of the volume of contents and despite my tongue-in-cheek comments is unlikely to turn anyone into a hardened gambler. The rate of play is as fast as the user demands and the software is robust enough — no crashes despite my language at times! **B.D.**

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VHSIC
Gigascale Computing

How about turning on the TV and settling back to see Humphrey Bogart in Star Wars III? Or how about John Wayne teaming up with Rambo for a fourth, or is it fifth, sequel? New movies starring popular actors of the past are only one of the innovations that will be possible when VHSIC — Very High Speed Integrated Circuits — technology is used in commercial applications. Bogey could come back to life in new films through advanced computer animation techniques requiring the sophisticated digital signal processing that can be achieved using the VHSIC technology that goes into packing literally billions of these tiny circuits on a sapphire or gallium arsenide wafer, which is just one of many projects being worked on under the auspices of the U.S. Department of Defense's VHSIC Program. Although the work being done now is strictly for military purposes, there is a general feeling among contractors that eventually the technology will make its way to the commercial marketplace. When it does, billion-dollar markets and brand new industries will be created, according to a recently published 218-page research report from International Resource Development Inc., a U.S. market research organisation.

One Gigaflop Per Second Is Old Hat

Computer applications that would be greatly improved with the use of VHSIC technology include the development of components in the design and production of scientific supercomputers, super mainframes and minis, artificial intelligence systems, pattern recognition systems (voice, sonar, radar and vision), and sophisticated graphics and CAD/-CAM applications, to name just a few. With the demand for supercomputers growing roughly 30% per year, the reduced size and faster speeds which VHSIC technology will make possible are important developments. ETA systems, 90% owned by Control Data Corp., is nearing release of the ETA^{10}, which will possess about 16 times the computing power of Gray's X-MP/48, which is approximately eight times as fast as IBM's Sierra mainframe. ETA plans to deliver its 10-gigaflop machines by late 1986 or early 1987. The ETA design involves packing the equivalent of eight circuit boards, with an equivalent of 250 chips, into a box immersed in liquid nitrogen for cooling. While the Cray machine is approximately the size of an operating table, the ETA^{10} is about the size of a large cutting board. ETA predicts that by 1991 it will follow through with a second generation product an order of magnitude faster than the ETA^{10}.

VHSIC Meets Doppler

Communications applications for VHSIC-like semiconductors in the commercial marketplace include their use in telecommunications switching gear (both terrestrial and space-based systems) in products eventually to be used in wiring up the home of the future, and in navigation and air traffic control systems. A wide variety of telecommunications-related systems require chips for the filtering and manipulation of signals. Speech recognition, speech synthesis systems, voice encryption (very secure and private), non-voice data encryption, speech compression systems, terminal accessories including character generators, format convertors, graphics routines, optical character recognition devices, mobile radio, paging and alarm systems, facsimile systems, and video conferencing are just some of the applications that will benefit from VSHIC. The signal processing methods developed for the military will find civilian applications in aircraft collision avoidance systems, ship collision avoidance systems, and automotive collision avoidance systems. The forthcoming generation of doppler-effect radar systems used at airports to detect wind shear are examples of systems whose processing requirements would push today's commercially available digital signal processing circuitry to its limits.

Sonar Guided Robots?

The work being done on VHSIC will benefit factory automation and medical instrumentation just as greatly as communications and computers. Robot and imaging applications will be improved by the real-time, computer-generated systems that will be orders of magnitude faster and smarter than anything available today. High resolution medical imaging units connected to X-ray, nuclear, radio-graphic or other high resolution sensing units will reach a level of detail that can show individual capillaries or hairline bone fractures.

But it is in the consumer applications where most of us will feel and see the improvements VHSIC can achieve. "Automobile navigation computers that will show a car's position on a digitized map, displayed in real time on a CRT in the car, will be commonplace by the end of the century," say IRD. Microprocessors and special purpose logic devices are already being used to control a variety of engine functions from monitoring brakes to keeping track of gas mileage and trip information. "There is no reason to believe we won't be seeing more and more sophisticated systems based on this type of technology in the future," IRD points out, "including systems that will compute a car's location from satellite signals." Such systems, coupled with digitized maps stored on optical disks are currently being tested; very expensive prototype systems are already available. Some other products to look for when gigascale (one billion components per chip) integration is possible: music synthesizers capable of duplicating the sounds of an entire orchestra on a chip, systems with the computational power of today's most powerful supercomputers — complete with digital processing subsystems, on a single chip.

In the more immediate future we will be seeing color TV with freeze-frame, split screen, optical dialogue captions for hearing impaired viewers, and many other features made possible by digital signal processing chips. Viewers could zoom in on a particular image frozen on the screen, store off certain images in memory for future use, and ghosts, the double images sometimes received in populated viewing areas, could be easily "programmed out".

The Report comes from International Resource Development Inc. which has been tracking commercially significant developments in semiconductor and telecommunications technologies since 1971. Further information on the $1,850.00 report VHSIC MILITARY AND COMMERICAL OPPORTUNITIES, IRD, 6 Prowitt St., Norwalk, CT 06855 U.S.A. Telephone (203) 866-7800; Telex 64 3452.

'British Lose Their Innocence'

The U.K. population is "losing its innocence" with regard to computers. Even children are being exposed to quite sophisticated computers at school and would probably "turn up their noses" if presented with an old Sinclair ZX80. So says a new 185-page report from International Resource Development Inc., a Norwalk, CT market research firm. This report, which forecasts developments in all segments of the UK consumer electronics market over the next ten years, also says that there are signs that the home computer is moving out of the "toy and game phase" and into the "tool phase".

The UK has the highest penetration of home computers in the world. This is mainly because of the availability of very cheap machines from Sinclair Research. But such hardware is not the only type of computer being bought by UK households, says the report. The kind of British consumer who a few years ago would have bought a typewriter is now considering purchasing a computer instead. According to the new IRD report, such a consumer could not 'care less' about computers. He just wants an efficient writing instrument for a few hundred pounds. But when he has bought a home computer for word processing, he may be easily lured into buying more software and peripherals.

Caution

This sounds like good news for home computer vendors. But the IRD report urges caution. It predicts that many consumers who bought the cheap Sinclair computers of a few years ago will never upgrade their equipment. 'Computers are no longer a novelty in the UK,' says Lawrence D. Gasman, project manager for the new IRD report. 'Most of the early Sinclair owners now know all they want to about computers. They will replace their primitive machines only if they can find a serious use for new equipment.' For the time being such 'serious uses' are confined to word processing. Eventually the computer may serve as a home controller in some affluent UK households.

But the constraints on the UK replacement market will lead to a decline in sales of home computers according to the new IRD report which projects that the £100 million home computer market in the UK will be worth only £75 million by 1996. The report says that any newcomers to the UK home computer market will face an uphill struggle. They will have to compete on price and the efficiency of their distribution systems. Above all they will have to face the Amstrad, which, with its acquisition of Sinclair, is attempting to dominate the market.

Peripherals and Software Not So Hot

Gasman believes that rather than attempt to introduce new 'home CPUs' vendors would be better advised to offer software and peripherals that are compatible with popular brands of home computer. This will, he says, reduce the risk of marketing add-on and software products since these products will not have to be produced in multiple formats to fit several different kinds of home computer.

But, even so, the opportunities in the peripherals and software markets are really 'not so hot' warns Gasman. Hardware add-ons and software products are notorious for the ease with which they capture the imagination of their inventors but entirely fail to capture the imagination of the consumer.

IRD forecasts that about £35 million in peripherals will be sold to home users during 1986, but says that this figure will stay more-or-less the same until the early 1990s. Sales of software will grow slowly. About £40 million in home computer software will be sold in the UK during 1986 according to IRD. But though the software market will grow to around £50 million within five years, it will lose its momentum after that. And although on the whole IRD does not expect software to suffer the price declines forecast for home CPUs and peripherals, there has already been considerable price erosion in the area of games software.

Home computers is only one of the segments of the £2.4 billion UK consumer electronics equipment market that is covered by the new IRD report. Other segments include video equipment, audio equipment, communications equipment, home security equipment, calculators, musical instruments, and electronic time pieces.

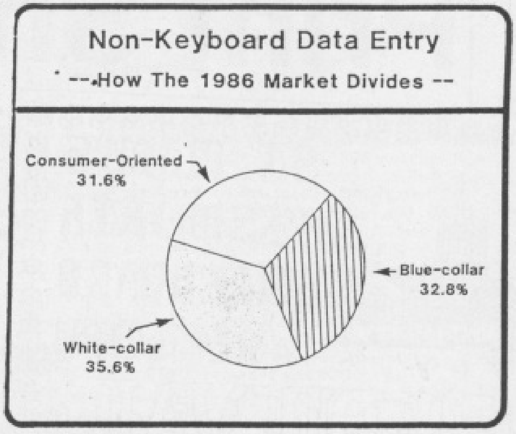
International Resource Development Inc. is an independent research firm, which since 1971 has been studying market opportunities in high technology areas both in the US and in Europe. Free descriptive literature including a detailed table of contents on this $1,650.00 report entitled UK CONSUMER ELECTRONICS MARKETS is available from IRD at 6 Prowitt Street, Norwalk, CT 06855 USA; Call 203-866-7800; Telex 64 3452.

Anti Keyboard Measures

For more than twenty years electronics manufacturers have been dreaming up new techniques of computer data entry. According to a new 307-page research report from Norwalk, CT market research firm, International Resource Development Inc., many of the resulting inventions — mice, tracker balls, touch screens — have been aimed at white-collar workers who can't type, or don't want to. "After years of trying to penetrate the upper echelon of the corporate hierarchy, computer makers are finally realizing that the snobbish directors and members of the board are never going to communicate with a computer in any manner if they can help it," comments Jean Buffham, a member of the IRD research staff that compiled the study. The result of this lack of acceptance in the office environment is a new penetration of non-keyboard data entry devices into the lower levels of business, where product acceptance is dictated from above and not decided on individually. Corporate executives have no problem asking their employees to do what they would never consider doing themselves. Applications developers have had a field day further automating shop floor procedures, and these new products, ranging from plug-in boards for PCs to advanced machine vision systems, are turning up in factories around the world.

Sweating Robot

For example, Japanese researchers are currently working new sensing technologies to emulate human senses. Microsensors, made possible by current on VLSI and VHSIC techniques, are providing developers with the ability to test and measure bodily functions without using people. A robot has been built that can simulate human perspiration and body heat. It is used to test underwear in the garment industry and save manufacturers the cost of human effort! Incorporated in the robot are a host of moisture sensors and data acquisition systems that constantly feed back the most detailed information on every aspect of how one sweats. Several thousand miles to the West, the Israelis have pioneered a robotic telepresence system which involves human-operated remote-controlled robots utilizing vision systems and tactile sensors to manipulate what the robots see and touch. The Israeli Air Force already uses elements of this technology for remote-controlled telepresence fighter/bomber drones. The only problem is that the telepresence creates a deep emotional reaction in the remote pilots (read: human) when a drone is blown up, crashes or scores a victory! "Humans are always messing up a good thing. You can only get so far from reality," notes Buffham.



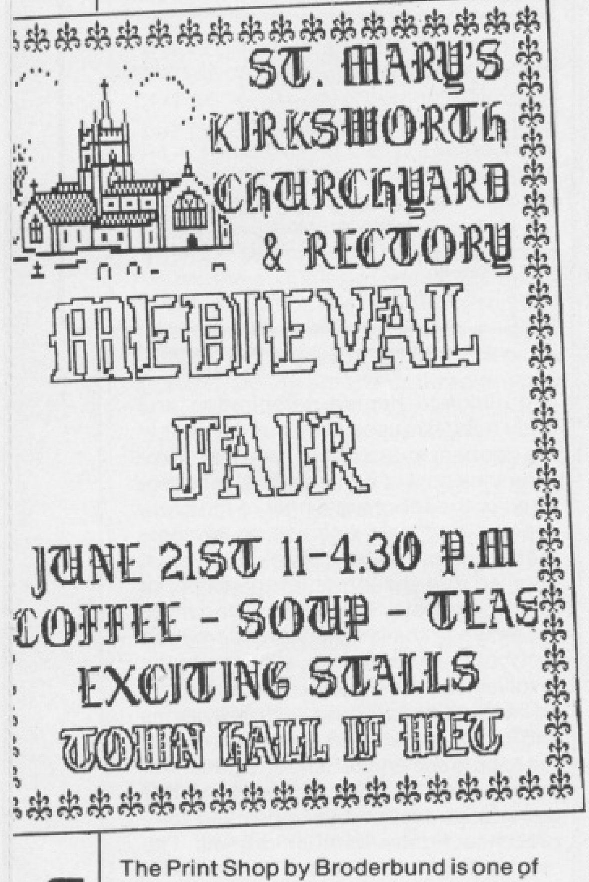
(SOURCE: INTERNATIONAL RESOURCE DEVELOPMENT INC.)

The ultimate form of non-keyboard data entry, direct telepathic reading of thoughts in the brain, may just be a matter of 10 or 15 years away, according to Buffham. Such telepathic machines would have the capability of picking up human thoughts, correct, edit and enhance them, and place them on a screen in front of the original creator, all in a matter of minutes or seconds. The sociological repercussions of telepathic data entry could be really frightening, points out Buffham, who has visions of being corrected by her computer in front of her boss, her boyfriend, or her parents.

These more advanced data entry systems are thought to be precursors of future data acquisition methods that will eventually create a seamless web of data capture and analysis capable of spitting out information with little human prompting or intervention. Whether that will help or threaten us, the report does not say.

Print Shop Companion
Print Shop Companion
Print Shop Companion
Print Shop Companion

Print Shop Companion



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Print Shop Companion

The Print Shop by Broderbund is one of the Classic programs like Visicalc, Wordstar, Superbase or Superscript. It brought to the lucky 64 owner the ability to create his own posters, banners, greeting cards and letterheads, with such consummate ease that an eight-year-old could use it. It has a few limitations — only eight different fonts (typestyles), more if you count solid, hollow or 3-D, and only nine different borders, while the graphics editor, though adequate, is somewhat basic.

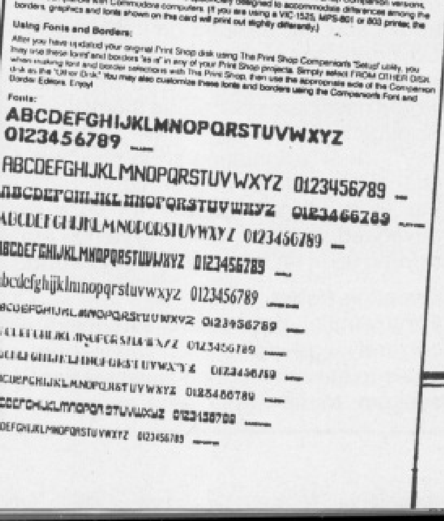
Now comes the Print Shop Companion, the program which unlocks the Print Shop and lets you tinker with the works. Twelve new fonts in varying sizes, fifty new borders, plus the ability to design any font you like, in any size, or create any border, if the fifty-nine now available are not enough. Adding greatly to the ease of use of the program is a built-in very fast loader. Since the program modifies your Print Shop disc, and is of little use without it I would have liked to see it put its fast loader on to the Print Shop disc too.

The Graphics Editor now has all the tricks of the trade — circles, ovals, rays, rectangles, mirror-imaging, pattern filling, horizontal and vertical flipping of the image, insertion or deletion of columns or rows, positive or negative forms at the press of a key, and even the capturing of graphics from other programs. You can take any graphic from disk or memory and alter it to suit your purpose, and you can move the image about, but the only thing missing is the ability to enlarge or reduce it, which is possibly too much to ask.

The Font Editor brings any of the fonts supplied to the screen for alteration or enhancement. Both Graphics and Font Editors permit the use of a device like a joystick or Koala Pad (my favourite) instead of the keyboard when editing, and it is possible to alter a whole font and save it to disk inside half an hour. Creating an entirely new font (such as the Olde English in my example) takes a little longer, but the result is worth while. You can print out the font that you are working on to see how it looks on paper, and three sizes of simple fonts are given for you to use as templates, with guide lines available to keep you within bounds.

The Border Editor lets you design your own or modify an existing one, showing you the overall appearance while you are working on it. Corner, top and sides can be worked on individually, and the top and bottom and opposite sides 'flipped' for symmetry if you wish. There are so many different borders supplied that I doubt whether you would use this much, but I did one of bells for a wedding card when I couldn't find anything suitable ready-made.

A very useful feature new to the Print Shop is a Calendar Maker. You choose a font and graphics, arranged as you wish, tell the computer what year you want it for (it goes back to 1753) and it does the rest. You may have a week to a page, or a month, and it then allows you to print special messages on particular days — useful reminders of birthdays, appointments etc. Each calendar may be saved to disc and re-used the following year. The days are re-arranged to suit, and the messages are inserted in the right place. Very useful for personalised Xmas presents! There is space for a credit line at the bottom, or it could be used for advertising.



Print Shop
COMPANION
COMMODORE REFERENCE CARD

For quick reference, this card shows each of the 12 fonts, 50 borders, 20 bonus graphics and 24 numeric graphics available on The Print Shop Companion. We have provided two Print Shop Companion versions, one on each side of the disk. Each version is specifically designed to accommodate differences among the printers compatible with Commodore computers. (If you are using a VIC-1525, MPS-801 or 803 printer, the borders, graphics and fonts shown on the card will print out slightly differently.)

Using Fonts and Borders:

After you have updated your original Print Shop disk using The Print Shop Companion's "Setup" utility, you may use these fonts and borders "as is" in any of your Print Shop projects. Simply select FROM OTHER DISK when making font and border selections with The Print Shop, then use the appropriate side of the Companion disk as the "Other Disk." You may also customize these fonts and borders using the Companion's Font and Border Editors. Enjoy!

Fonts:

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0123456789 —
ABCDEFGHIJKLMNOPQRSTUVWXYZ 0123456789 —
ABCDEFGHIJKLMNOPQRSTUVWXYZ 0123456789 —
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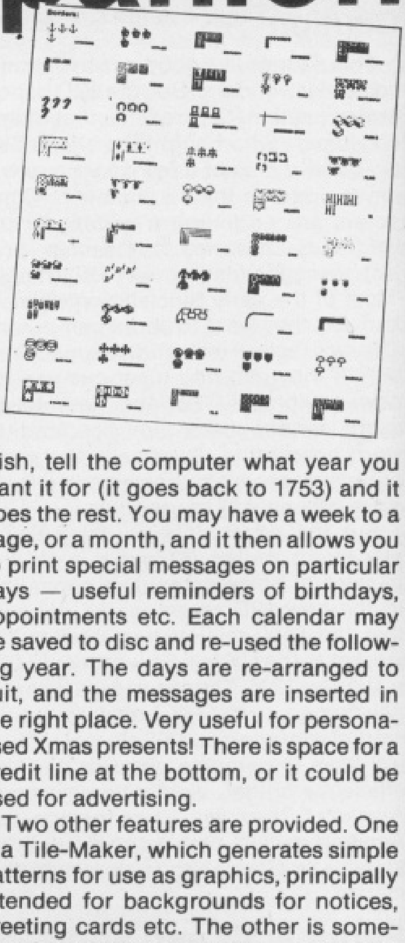

Two other features are provided. One is a Tile-Maker, which generates simple patterns for use as graphics, principally intended for backgrounds for notices, greeting cards etc. The other is somewhat juvenile in conception — rather out of place in an otherwise very professional package. The Creature Maker "allows you to create graphics by mixing and matching body parts from a whole zoo of crazy creatures . . . There are 1,000 possible combinations". So they say, but I couldn't see much point unless one was making up a simple colouring book for tiny tots.

All in all, however, this is a worthy development of what is already a superb program. What next? Well it would be nice to see a version for the C128 taking advantage of the greater memory to avoid so much disc changing and provide different fonts and graphics on the same page. At the moment the limit is one font and one graphic per page, though by using the same graphic in different positions, and different sizes and versions of the same font (solid, outline and 3-D), considerable variety in appearance can be attained.

The program is sold in this country for £34.74 by Precision Software Ltd., 6 Park Terrace, Worcester Park, Surrey KT4 7JZ. Tel: 01-330 7166.

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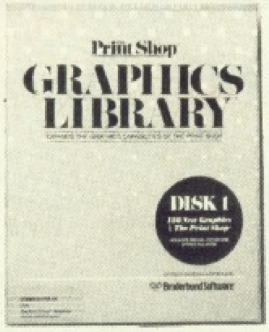

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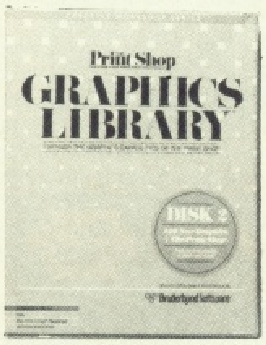

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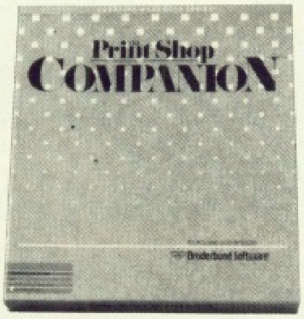

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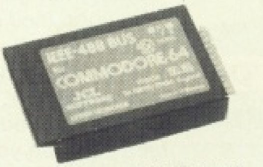

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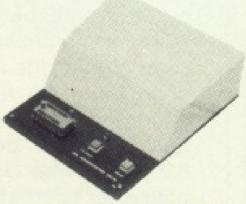

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MPS 803 TRICKS

Charles Loder

USING THE 1526 PRINTER

Whilst the 1526 or MPS 803 is not the most versatile of printers by today's standards, it is probably the best of the dot-matrix printers which Commodore have produced since it is specifically designed for the CBM 64.

There are of course, no problems with interfacing, since it connects directly to the serial bus of the CBM 64. In Upper Case/Graphics mode it will print all the Commodore graphic characters, whilst in Lower Case/Business mode the character font is quite attractive, since unlike some other printers it has "true descenders" on 'g' 'j' 'p' 'q' & 'y'. In fact, the only letter with an 'un-natural' appearance is the lower-case 'K'... and this can be improved quite simply.

Despite the fact that not all of the Easyscript or Supercript print options are directly supported, since CBM printers allow the use of special characters and secondary addressing it is still possible to use on-screen instructions to enhance the appearance of printed text. With a little thought and patience you can calculate how to alter the line spacing, produce emphasized or underlined print — and if you don't like the original lower-case 'K' then design a satisfactory one and exchange them by means of the Search and Replace facility.

Whether you're working with Easyscript or Superscript, the techniques are similar — the advantage that Superscript offers is the opporunity to incorporate some of your changes in the 'defaults' file thus avoiding the problem of placing all the instructions in the text each time. An example of this is in changing the 'K' — the technique with Easyscript is described in Section 8.2.11.1 of the User Manual. The new character is created by means of a format instruction made up of 'ch' and six decimal numbers separated by commas — for example, *ch0,126,8,20,34,0.

Although with Easyscript where the user has to define individual instructions in the text each time, Superscript allows substitution as the 'User-Defined character' created within the printer initialise sequence of the 'Defaults' file. This character may be called up by means of 'Feature 1'.

I use the 'Special Character' facility of Easyscript to make available some of the graphic characters available in Business Mode on the 1526/MPS 803 and these assisted me with creating lines of various thicknesses, and with the production of outline boxes. Box 1 Box 2

Superscript allows the user to have these characters permanently on call by substituting the graphic characters for some of the characters that are unlikely to be required, such as the foreign character sets.

These changes, when used with Secondary Address commands in the text, allow the printers to emphasize, *underline* and draw boxes.

I had originally intended to list all the changes which I have currently made to the Superscript 'Defaults' file however, on reflection I decided it would be better for readers to experiment with their own selection of characters. I know that the characters I may choose will not suit everyone — they don't always suit me! For instance I had banished the dollar sign for the moment at least, which isn't always entirely convenient.

It is important to remember that it is as simple to change these characters as it was to create them. By calling up the 'Defaults' File and making your amendments, then going through the f1 P I P sequence (see page D2 in your Superscript manual).

If you tried changing the 'Printer Initialise sequence', you'll have noticed that to use a Secondary Address in the Printer Definition you use only 's'; however, when inserting Secondary Addresses in your text you MUST follow your layout character with 'sa...' for your command to work — the following examples will show you what I mean.

What you are trying to do here is to use one of your graphic characters to draw a line beneath your title. Depending on whether or not you are in 'default' spacing, i.e. 6 lines/inch, and on how far beneath your title you want your underline to come, you may need to reset your spacing. The normal line space will not bring the lines closer. This means you will have to apply an alternative technique, that is by 'secondary addressing'. The important point to remember here is you must give the 'secondary address' command BEFORE you print your title, to close up the space that follows in order that your underline will be correctly positioned.

Set your lay-out character (preferably on a line to itself), followed by 'sa, (No.)' — the value you give to 'No.' will determine the line-spacing of your printing, as explained in your printer manual; I would suggest you use a 'No.' of 24, which will close the spacing to 9 lines/inch. If you need to reset printing to 6 lines/inch, the next line should reset the 'No.' to 36, which will result in normal spacing of the text following your (graphics) underline.

TITLETITLETITLETITLETITLE will print TITLETITLETITLETITLETITLE
graphicgraphicgraphicgrap

Of course, instead of going back to 6 lines/inch, you could always stay in 9 lines/inch and use Superscript's spacing commands 'sp1' & 'sp0' to widen and narrow the spacing.

Emphasizing a Title

Emphasize and a title are achieved by overprinting — the method employed to facilitate this is very similar to the previous one, except that you must narrow the line-spacing down to zero! To do this, make the 'No.' zero (0) — this will produce a Carriage Return without a Line-Feed. On your next line you write your Title.

On the line after you give your next Secondary Address instruction, followed on the succeeding line by the title you want to emphasize — taking care to line up with the earlier one, since this will be overprinted; you can further enhance your title by underlining it. To both emphasize and underline your Title, your screen instructions should look like this:

*sa6,0 TITLETITLETITLETITLETITLET
*sa6,24 TITLETITLETITLETITLETITLE
*sp1 graphicgraphicgraphicgraphicgra

Changing the 'K' to 'k' is done quite simply with the help of the 'Search & Replace' commands of either Easyscript or Superscript, replacing the 'K' with your new 'User-Defined' one... watch out for capital 'K's or for 'k's in Layout commands!

Points to Watch for

* If you use over-printing, or close up the line-spacing, you'll have to re-set the text & page lengths.

* Don't bother trying to put secondary addresses in the 'defaults' file to control line-spacing — bitter experience proved it doesn't work!

* * * * *

Some ideas are easier to put into practice than others, but it IS possible to improve the appearance of your printed text on the 1526/MPS803

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Oxford PASCAL for the C128

I first started using Oxford PASCAL in 1984 on the C64 and I have always rated this to be the best available PASCAL. The opportunity to test-drive the same product in its C128 guise was one I looked forward to with some relish. Regular readers will know that I am a strong advocate of structured languages — the PASCAL language is very highly structured and is heavily used in the universities and polytechnics of the UK as the standard teaching language for computer programming. In the 16-bit world of MS-DOS, *Turbo* PASCAL from Borland is very popular and is consistently among the top three sellers in the USA and Western Europe. The operating system of the Apple MACINTOSH is written in PASCAL — although most professional programmes would agree that this was not a wise move, even PASCAL has its limitations! I always feel that a good measure of the popularity and therefore success of a programming language is measured by the number of books published dealing with it. This year there has been a veritable torrent of books on PASCAL judging by the lists that Messrs. Computer Bookshops of Birmingham kindly send me.

So PASCAL has a strong following and an investment in your time learning this language would not be wasted. Indeed after BASIC, PASCAL should be the natural choice for your second language. Those users who run into difficulties or find the transition to PASCAL just a little too much should consider COMAL, a sort of halfway-house and is another of my personal favourites. PASCAL is a *compiled* language as opposed to an *interpreted* language such as BASIC. This means that the program the user types in from the keyboard is converted into machine code only once — that is during the process called *compilation*. An interpreted language has to have each program line converted into machine code every time the program is run causing a reduction in the overall execution speed of the program because of this intermediate step. This is the reason why games using sprites are written in machine code — a BASIC program would be too slow. The analogy is rather similar to boiled eggs — consider an egg purchased from the supermarket. This has to be boiled in order to become edible, although in appearance it is no different from a boiled egg. The process of boiling. the egg in water is analogous to *compilation* — to the user the program appears as a series of statements in English, it is the invisible contents that have been changed. Thus if the egg has been already boiled or *compiled* then the eater or program user can make a much faster start on their respective requirements. It should be quite some fun peddling down to your local grocery shop and saying "are these eggs compiled?" — don't blame me for the reply!

Oxford PASCAL does not provide true machine code after compilation, rather a *psuedo-code* or more commonly referred to as *p-code*. This gives the benefit of much faster compile cycles since the source program is semi-compiled, but has the drawbacks of leaving less memory for the user because the p-code itself needs a p-code intepreter and program execution is not as fast as that had the compiled code been true 6502 machine code. On the other hand, optimisation of compiled code is an expensive goal in financial terms and if Oxford Pascal provided true code, the price of the product would be considerably in excess of what it currently costs.

The C128 version provides further extensions to PASCAL than the C64 version simply on the basis that the C128 uses BASIC 7.0 rather than BASIC 2.0. This is because Oxford PASCAL draws on some of the BASIC routines installed in the machine concerned, although in some cases they are not directly comparable. To give you an indication of the special extensions to Oxford PASCAL in this version *beyond those available on the C64* I have listed these below:

GRAPHICS					
	BOX	CIRCLE	COLOR	DRAW	VDU
	GRAPHIC	LOCATE	PAINT	SCALE	RCLR
RDOT	WINDOW	RGR	WIDTH	RWINDOW	
SOUND					
	FILTER	SOUND	PLAY	TEMPO	VDL
ENVELOPE					
OTHERS					
	FAST	SLOW	BANK	JOY	PEN
	POT				

This does of course raise the spectre of compatibility between the various dialects of PASCAL which has the same problem in this context as BASIC. I feel that Oxford PASCAL steers the best course since it allows the use of all of the features to the PASCAL language in addition to providing facilities through extensions to access the peculiarities of the machine. For example, the European standard for PASCAL, ISO-PASCAL provides very little direct access to the underlying hardware in the interests of maintaining portability, thus Metacomco's ISO-PASCAL for the AMIGA leaves the job of extending the language to reach these elements of the machine to the programmer themselves. This is fine if you are familiar with PASCAL and the machine, otherwise it is tough going for an inexperienced PASCAL programmer. Thus one of the arguable strengths of Oxford PASCAL lies in its ability to exploit the C128. Despite what the educationalists would like beginners to computer programming to have in the way of dull and boring entry routines into the language — there is no substitute for getting a squawk from the machine or pretty pattern on the screen to stimulate AND MAINTAIN the initial interest in learning a computer language. This is exactly the approach taken with marked success by COMAL.

The product is supplied on a single disk complete with a novel form of copy protection which fulfills my personal criteria for this. These are that the product can be duplicated by the user without hassle and the method does not have a detrimental effect on the hardware i.e. the disk drive. The technique used by Systems Software (Oxford) Ltd. uses a card which has a complex matrix of coloured dots and on loading the software the user is questioned about the relationship of these dots — very simple and effective and one which receives my full support. The documentation provided is that used for the C64 version together with additions for the C128. I also liked the inclusion of the various system memory maps, useful when linking assembly language routines into a PASCAL program, a facility which Oxford PASCAL fully supports.

Oxford PASCAL always was a very good tool for learning PASCAL and in this version for the C128 it is even better. A larger memory, 80 column display and access to BASIC 7.0 make it the premier PASCAL product for the C128. Well worth buying — it is an investment in your programming future.

Supplier: Systems Software (Oxford)
Ltd. 16B Worcester Place
OXFORD OX1. 2JW
Tel. 0865 54195
Prices: £49.95 (C128 version)
£39.95 (C64 version)

SCREEN DUMP

Yet another PLUS/4 product from the prolific TRI-MICRO stable, only this time it is a pure utility. To the best of my knowledge I have yet to see anything that provides the facilities that this product offers, which is a dump of the high resolution screen on the PLUS/4 to the printer. The software will only support a Commodore Serial printer such as the MPS-xxx series or 15xx series. I must admit to being a little disappointed by this since it rendered the use of my trusty EPSON RX80F/T printer out of the question. If you have a Commodore MPS-1000, then no problems, since this is essentially a *badge-engineered* version of the EPSON LX-80 with a Commodore serial interface. The reason why I feel it is important for any software that provides a printed out put to give support to a Centronics-parallel printer is simply because of the vast range of printers that is now available to home computer users. Provision of a Centronics-parallel software interface widens the scope and therefore the sales appeal of the product.

In the absence of the earlier printers from Commodore, I borrowed an MPS-1000 and found no problems with the software. One unusal benefit provided by this product was the provision of a facility to list out the driver program. Advanced programmers could then customise or modify the existing routines for optimum speed. This was a very good move on the suppliers part since this makes the software *open* for inspection rather than the usual *keep their noses out* approach. Another very useful feature of this software was the ability to *relocate* the source of the dump data within the address space. This means that for lengthy BASIC programs where the programmer has moved the screen data out of the way of the main program the **SCREEN DUMP** software is able to locate where the data for the dump is and proceed from there. The program listing is commented for just this purpose and presents an insignificant challenge to most programmers.

Another possibility with this product is to dump the screen data to the disk rather than the printer. This has the advantage of permanently storing the screen and provides a means of loading in screens very quickly since they are held on disk. If you want further ideas for advanced programming on the PLUS/4 using this software how about *overlays* — this would be done by switching between screens to display fresh images whilst the second screen's data is being loaded in from disk. None of this is mentioned with the software although I feel that given imagination, this product could form the platform for some very useful programming. An opportunity such as this is well worth taking for software-starved PLUS/4 owners.

B.D.

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64 DRAWING BOARD

64 Drawing Board is a 2D drawing package produced by Culton Sales and Services Ltd. There are 2 versions; a cartridge costing £49-50 and a disk version costing £29. It is primarily aimed at the designer and draughtsman, although as the screen dumps show it can also be used for general 'freehand' sketches if required. The serious nature of the program is revealed by the total lack of colour — black and white is the order of the day.

THE REVIEW PACKAGE

The actual program that was reviewed was the disk version, since the cartridge has not yet been officially released. What you get for your money is the drawing program, plus a disk of examples and the I/O routines. There is also a tutorial program, although I found this slightly less than useful since it doesn't actually teach you how to use the system, only how to move about the screen and swop between windows and the main drawing area.

A DIFFERENT APPROACH

I think I can safely say that this program is different to any other drawing program I have ever used. For a start there are no pre-defined drawing routines; eg circle, box, line, fill etc. In fact, as far as the drawing itself is concerned there are no commands whatsoever apart from *text, draw* and *erase*. What the program does is to allow you to extract any part of a 'window' and create an 'object' which can be rotated, moved, flipped, angled etc; these objects are called 'macros'. You can build up a library of these macros (about 39 at a time) and use them anywhere on the drawing.

The actual drawing I also found most peculiar; you cannot draw on the full screen, only in 'window' mode. The total drawing area is 640 × 400 pixels, normally split into four 320 × 200 pixel screens. These screens are number 0-3, but all current drawing is done on screen 0. This means that you can store 3 drawings, plus work on a fourth, but if you want to look at any of the other screens they will normally overwrite screen 0. On the screen is a small 40 × 24 pixel 'window' in green and this can be moved around the screen. However, if you actually want to draw anything you must press 'w' which takes you into 'window mode' and expands the window to fill the TV screen. Each character position on the TV screen now represents one pixel on the main screen. You can move the cursor around using either the numeric keys or the cursor keys. The function keys set either 'draw', 'erase' or 'idle' mode (the last of these just lets you move the cursor without changing anything) while there are a number of other key commands such as 'm' to call up a macro etc. The 'rotate' and 'lean' commands for manipulating a macro are slightly less than useful at present since they truncate any part of the design that happens to go outside the window boundary; the object has to be extremely small to stop this happening. 'Flip' does *not* suffer from this fault so by choosing the order of commands carefully you can sometimes get round this limitation.

TUNNEL VISION

The window area moves about on the main screen while you are drawing, so it is perfectly possible to complete an entire drawing without ever returning to the main screen. Unfortunately this is rather like trying to view the interior of a house using a telescope; you get lots of detail, but it's difficult to retain an overall picture in your mind!

The suppliers say that a full screen drawing version will be available for the 128, but that the 64 is stuck with windows. The window is excellent for doing small detail, but more difficult for drawing things larger than about 4 windows in size without an awful lot of preplanning. You can swop back and forth between the main screen and the window at any time to see how the lines fit together, but this does take a little getting used to. There are also a number of enhancements being planned, such as the ability to use the keypad on the 128 keyboard to move the cursor, even though running in 64 mode.

PRECISION DRAWING

There are a number of features built-in which allow better accuracy than almost any other drawing program I have tried. For a start, you can expand the overall drawing area to the full 640 × 400 pixel area, which prints out as a single page on the printer. You can also scale the lines; eg to give standard brick thickness for the walls of a house. This doesn't alter the thickness of the lines, but scales the row and column values on the command line so that you can read them like a distance figure. Because you are dealing with single pixel accuracy in the windows you can produce quite amazing detail and, unlike many programs, this maps down to single dots on the printer, rather than being scaled up to a 4-dot 'blob'. This, combined with the ability to extract any area of the screen and turn it into a macro and move it somewhere else does mean that repeatable accuracy is easily achieved. It is also possible to AND, OR and XOR screens with each other to check things like through-hole plating positions on double sided PCBs, or overlay the plumbing on to a house plan etc.

STORING PICTURES

You can store both screens and macro sets on disk. Access is either by moving the cursor over the filename in the directory or just typing the filename. When saving, the program checks to see if the file already exists; if it does you must confirm that you wish to replace it to avoid accidental overwriting. Drawings can be sent to the printer, although due the higher effective resolution a standard screen only takes up a quarter of the page when printed; there is no way to scale up a screen to fill the printer page. The program will work with Commodore printers as well as Epson printers with a suitable interface.

THE MANUAL

The manual is a glossy bound A5 size booklet covering all aspects of the program. It contains example printouts and has a section on "Getting the best from 64 Drawing Board". There is both a contents page and an index, although the program was easy to use once you had learned what all the commands did and what sequence of keys were needed for a given command. Time spent study the manual will not be wasted.

CONCLUSIONS

This program is intended for serious design work and requires a large degree of pre-planning with an eye for detail, although the end results could easily justify the work involved. Whether there are enough designers and draughtsmen around with Commodore computers to make the sale of this program a viable proposition is another matter. At £29 for the disk version it is very competitively priced, although I am not sure that anyone will really want to pay nearly double for the cartridge. If you really can't get the accuracy you need with the current range of programs, this one could be the answer.

Chas Duncan

£49-50 cartridge, £29-00 disk
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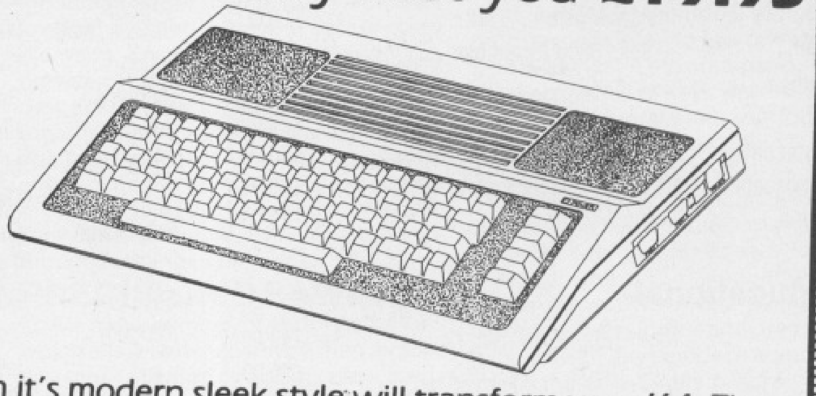

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"EVESHAM 8 MINUTE NIBBLER" still very powerful and has been improved. Copies a few that the three minute version won't.

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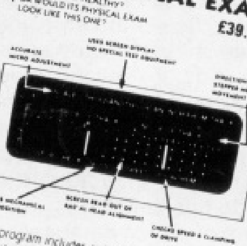
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THE CONSULTANT

Not a highly qualified medical program. Not even an overpaid Financial Adviser. "The Consultant" is, in the words of the packaging, a professional database management system.

Describing any software for a home computer as "professional" is, to my mind, a little disingenuous. It presupposes that somebody who charges money for managing data is going to choose to use what is, after all, a rather limited piece of equipment. I don't think anybody's going to get rich by sitting waitin for their 1541 to sift our relevant bits of information from a database big enough for somebody else to be prepared to pay money to access.

So it's probably not a professional database management system.

From Batteries Included via Ariolasoft, The Consultant shares the smart style of packaging of Paperclip, Cal-Kit and B/Graph. It also features a manual small enough to fit into a 10-disk library case — nicely printed and sensibly spiral-bound to open flat but, in my humble opinion, too small.

The Consultant is disk-based and therefore suffers speed limitations when compared to memory-based databases. This shortcoming is more than compensated by the extra facilities available and the huge increase in the possible size of data files.

For the £45 (U.K.) that The Consultant will set you back, you get a disk with three versions of the program — one for the C128, one for a standard C64 and one for a C64 with BI's 80-column adaptor. There's that manual (all 188 pages of it) and there's a "key" that fits into one of the control ports on the computer and without which the program will not run. The whole lot is neatly packaged into a disk library case.

The usefulness of a database system is measured by the type and quantity of the information you can put in and the different ways in which you can extract information once you have entered it. The quantity of data that can be stored is limited by the storage system — in this case a disk in a 1541. The Consultant scores pretty well in the other areas.

Before I go into what this particular dbms can do, it is worth recapping on a few of the standard terms used by virtually all such software. The way a database stores information is usually compared to a filing cabined full of record cards. Each drawer of the cabinet is replaced by a disk "file", which consists of a number of "records" (cards). If information stored on the cards can be pictured as being put into ruled boxes, these boxes are replaced by "fields" in the database system.

The Consultant allows you to design records with up to 99 fields. These may be contained on up to 9 "pages" or screenfuls. This is a lot more than most databases on the Commodore 64 will allow and is probably a lot more than most people are likely to need. Records may also contain text outside the actual fields — this makes it a lot easier to understand the records when you call them up some time after the information was entered. Fields may contain text or numbers of a combination of the two. Numerical fields can be generated by the computer by mathematically combining entries in previous numerical fields.

Where The Consultant scores over nearly all the other databases I have seen on the C64 is in the way data can be accessed and presented. Reports can be designed to present selected data from the records in virtually any format. More than one field can be printed on a single line (with or without suppression of spaces); fields can be omitted; sorts, subsorts and searches can be performed on any field on the first page of the record; labels can be printed; headers, footers and page numbers can be included; screen dumps can be performed (useful for producing hard copy of blank records) and Consultant data files can be used in conjunction with Paperclip to produce customised form letters.

Although The Consultant is not cheap, I think is represents good value, despite a number of shortcomings. It will only communicate with printers via the serial port, so you'll need to have a Commodore printer or a hardware interface. The manual is not only too small but is also badly laid out — all the information is there, it's just difficult to find the exact bit you want. And Ariolasoft haven't bothered to anglicise the American program or manual (I'm told that they intend to do this in future).

There are plenty of databases around for the C64 and which one you buy depends to a large extend on what you're going to do with it. If you just need the equivalent of a card index file, there are cheaper and quicker products on the market. If you need lots of fields and pretty sophisticated reports, The Consultant is an excellent buy.

Tony Lydeard

Contact: Ariolasoft, 68 Long Acre, Covent Garden, London WC2E 9JH. Tel: 01-836 3411.

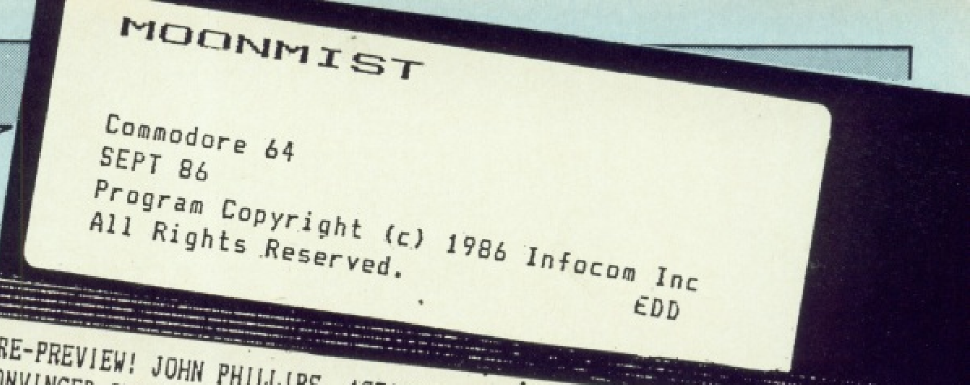
HOTLINE (A PERSONAL GUIDE TO COMPUTER COMMUNICATIONS) —Ben Knox £6.95

It's almost impossible to pick up a computer or electronics magazine nowadays without finding several references to the wonderful world of communications. On reading some of these you could be forgiven for mistaking them for a foreign language. One article I recently read contained more acronyms than Neil Kinnock has freckles. At first glance the whole comms business seems to be nothing but a myriad of strange terms and protocols. If, despite all this, you still decide to give it a bash, where do you start! What will you need! How much is it all going to cost! Ben Knox has sought to put all your minds at rest with his book HOTLINE. Ben starts off with an explanation of the modem and its associated jargon ie. Asynchronous, duplex, 1200/75, auto answer/dial etc etc. He then goes on to enlighten you as to the delights of the infamous RS232 interface, a topic which has been known to reduce grown men to gibbering wrecks. There are a few pages on the types of software you will need and what extra facilities to look out for. The book then sets out to tell you how to get 'Online' on just about all of the current systems ie. Bulletin Board Systems (BBS), Prestel, Packet SwitchStream (PSS), Advanced PSS, Multi-User Dungeon (MUD), Telecom Gold, Compuserve or The Source. Also within these pages are listed most of the British BBS's along with their telephone numbers, operators, and features. An index to the Compuserve system is included for those of you who are rich enough to use this fantastic facility in the States. The appendices contain the complete RS232 specification and a nice glossary of computer communications terms.

Conclusion:

The book was intended to give a good grounding in the concepts of communications and to further function as a reference guide once the reader becomes more experienced. In this it succeeds very well. I feel confident that a complete novice could pick up this book and within a short span of time comfortably venture into the fascinating world of Modems and mail boxes. The book is well written and not too heavy going. It covers each topic to a sensible depth and pays regard to the financial constraints home micro users usually face. One for your Christmas stocking.

Ian Bennett



MOONMIST

Commodore 64
SEPT 86
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EDD

PRE-PREVIEW! JOHN PHILLIPS, ACTIVISION'S MARKETING MANAGER. WAS CONVINCED OVER 3 RATHER LARGE BOTTLES WINE AND A MINISCULE HAM SANDWICH TO GIVE JULIAN ROSEN, OUR INTREPID STAFF WRITER, AN ADVANCE LOOK INTO ACTIVISION'S FUTURE.

Activision is one of the big names in software, world-wide. In the US, they are the biggest recreational software house in the industry, and certainly one of the richest. They have offices all over Europe and the US and are truly an multi-national company. Activision have a huge range of products lined up for release this Christmas, and now that they own both Infocom, the renowned US adventure company and Gamestar who produce excellent simulations, they are truly a 'Big Blue' to reckon with,

Under the afore-mentioned Gamestar title, they will be releasing GBA Championship Basketball game, Two-on-Two, and Baseball. Basketball is excellent, featuring a high degree of team-work, realistic gameplay, sound effects, and graphics, and a choice from a list of ten for a team-mate (hence two-on-two, although a 23-team league competition is also available). Baseball is of a similar standard, except the graphics are even better.

To follow up the very successful Gary Kitchener's GameMaker, Activision have released two library disks providing routines, sound effects, and graphics to aid in the production of science-fiction, and sports games. GameMaker now has something of a cult following and although nowdays does not receive a lot of publicity, a lot of them are being heavily used all around the world.

"Howard, a new breed of hero!" Yes, Activision has acquired (for a change) the film rights to Howard the Duck, based on the comic-book and movie called would you believe it, "Howard the Duck (stop waffling and get on with it!Ed)". Howard is a duck from (sigh) DuckWorld who was brought to earth completely by accident. Having reconciled himself to the fact that he's stuck on this mud ball, he uses his sharp tongue, and his great knowledge of <scream> Quack-Fu to battle the villains. Howard the Duck uses characters from the film to further the game's adventures on Volcano Island. Looks good!

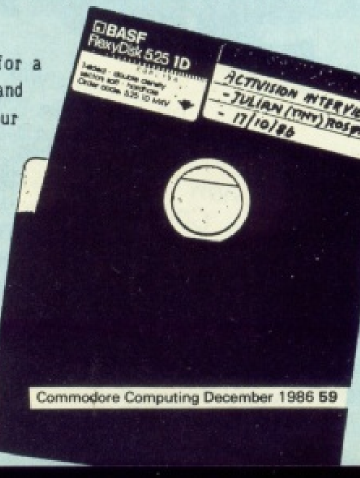
Tass Times is an adventure...and its wierd! Tass Times in Tonetown is set in an alternate reality, where the hit tune is Tass by the Daglets, and everyone is ultrasmooth, ultracool, and ultrastrange. So how'd you get into this? Well, your grandpa (Gramps) has vanished from your dimension, and is stuck in Tonetown, and you're the one whose gotta get him out of there. If that wasn't difficult enough, there's a rather vicious beast by the name of Snarl with green scales, dirty fur, and large, yellow fangs (and no, he's not our editor though we do have our doubts sometimes!). He's after YOU, and let him get you and you won't be a pretty sight....
Tass Times has a touch of madness about it. The graphics are zany, and simple commands such as drop, examine etc can be entered via pretty good icons in the top right corner. Get this one when it comes out!

Another set of popular characters have been used in Transformers, The Game where you (the Autobots) battle against the Deceptocons, the invaders, to save the earth. Shanghai is a rather addictive computer version of the Chinese game, Mah-Jongg. Picture tiles depicting Chinese characters and symbols are stacked in the form of a Dragon. You have to defeat the Dragon by removing matching tiles from the piles, but in doing so you must think several moves ahead. Take out tiles without thinking, and you may find the game impossible to finish! Fiendishly difficult game....

Lastly come Moonmist and Portal (whom nobody could tell us anything about!). Moonmist is the latest Infocom releasee and combines a mixture of treasure hunting, ghost hunting, and gothic mystery in an old mansion.....wait for a full review!

As you can see, there is a large range of products lined up from Activision for this Christmas. When you get the chance, go out and get 'em...theyyyyyyy're grrrreat!

Watch out in the early new year for a feature on Monsieur Rod Cousens and Activision, in the same vein as our current company profiles.



ACTIVISION INTERVIEW
- JULIAN (TINY) ROSEN
- 17/10/86

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MEGAREVIEW

CCI Rating C64

MEGA

FIST II

Melbourne House have decided to follow up their hit, and now classic martial arts games, 'Way of the Exploding Fist', with Fist II to try, presumably, to capitalises on its predecessor's success. I'm not saying that MH are wrong, but I do think that something more original and imaginative than 'Fist II' might have been chosen for its name! Still, the name isn't the game so it doesn't really matter. However, the name will see the game!

Fist II puts you in an era when the warriors of the Exploding Fist have been betrayed, and their secrets lost in the rubble of destroyed temples. The land is ruled by an evil dictator from his volcano fortress, and around him the land and its populace are dying. Only a descendant of the old Fist Masters yet to come can win over the warlord, and you are that one.

You must search the land for the hidden scrolls and temples that will bring understanding of your inner self, skills, and fighting techniques. Your journeys take you through catacombs, towns, jungles, swamps, caves, and rivers.

Guarding the warlord are his servants. First there are the peasant soldiers, a fearless bunch recruited as mercenaries. Then come the warrior guards, powerful, strong and skillful fighters, very hard to best. Ninjas attack without warning, and will throw damaging stars at you if you don't watch yourself. Shoguns are the cheiftans who are under the control of the warlord are almost invulnerable and will normally be reached only after heavy fighting with guards. Lastly come the assassins, set on your by the warlord when your exploits come to his attentions, and the Mud warriors, underground sub-human creatures who throw poisoned stars which inflict a lot of damage! Also hazarding the underground passages are an assortment of monsters and beasts.

Fist II doesn't have a lot to offer over other fighting games ... they're all much of a muchness now. Good graphics, excellent sound and music, and as you'd expect, vast numbers of sprites (700) with 100 screens do make this one of the better offerings though! Recommended.

Price: 9.95c/14.95d
Graphics: ★★★★
Sound: ★★★★
Playability: ★★★★
CCI Rating: MEGA

CCI Rating C64

IFFY

KNIGHT RIDER

OCEAN

'NOT UP TO OCEAN'S USUAL STUFF' SAYS JOHN ARTHUR

You are Michael Knight in Ocean's long awaited convert from the brilliant TV programme. You've got to uncover the plot behind a group of international terrorists' plans to start a 3rd world war. There are three main screens, a map, a 3D driving screen and an operation bases screen. The map shows the U.S. of A and possible cities which could be centres for the terrorists. The town in which you are situated is flashing, and a menu shows which cities you may drive to next. The driving screen is a pretty poor version of pole position and either you or Kitt can drive. Mind you, Kitt is slow. Depending on who drives, the other has to try and shoot down enemy helicopters. The actual game instructions are situated on — screen for the operation bases, but I couldn't find 'em.

The graphics are pretty awful and not up to the usual stuff that Ocean dish out. Ocean seem to be losing their ace programmers and will have to work at it if they are to avoid becoming a poor S/W House. The sound is also pretty terrible and it's a pathetic rendition of the K Rider theme.

Price: £9.95
Graphics: ★★
Sound: ★★
Playability: ★★★
CCI Rating: IFFY

Is it a bird? Is it a plane? No, it's SUPER FELIX! He knows who

Max's New Babies

Max the Ad (whose main occupation these days is adding languages to his telephone answering machine in his Villa office in Monte Carlo to translate 'No space left' into 14 different tongues including Mandarin and Esperento) has acquired two interesting new possessions. The first is a sparkling white Porsche which he hurtles at a furious pace around Europe bearing believe it or not a L plate. Why? So no-one will get close enough even to scratch his brand new baby... And talking of new babies... He has also acquired a beautiful new 'assistant' Miss Krotoa (I kid you not that's her real name) Moses also known as the Priceless Pearl of Palmers Green. The dark-eyed gorgeous Krotoa just sits staring all day long at the lucky Max the Ad, asking 'is there anything you'd like me to do?' I wonder if he's mentioned the wonderous Krotoa to his close friend, the glamorous Stage and TV star, Gillian Tompkings at present packing them in with her ultra lady-like performance in 'Blood Sweat and Tears...' If you see him coming better step aside, a lot of men didn't and a lot of men died ...Brooozoom!

The Press Released

I want to let you into a secret. You may think this sacred magazine is written from the deep investigative reporting carried out by the thousands of overpaid writers who haunt the echoing corridors of CCI Tower. Wrong. CCI in common with every other Commodore organ, Plop, Byte, Run, Scamper, Playboy, Rustler, Personal Computer Weakly, The Times, Le Monde, Pravda, Wall Street Journal, Puerto Rico Gazette to say nothing of a million lesser publications for all of them, their published material comes from just two sources now. Two all powerful Public Relations companies dictate to the Editors of all those august journals each day, what shall be written and published, on their apparently independent pages. I can exclusively reveal to you in absolute secrecy, the names of these two incredibly influential institutions. They are non other than Brighton Pier Solutions and (swear you will reveal this to nobody!) Headliners.

These two secret societies equivlent of Hong Kong's Triads, the first run by the son of the last President of Spain, by Sir David Carlos and South coast aristocrat, the illegible Michael Boxter and the second by the seductive, mysterious Lesley Media-Mattus have recently had a meeting in Iceland (the other one between Regan and Gorbackov was just a smoke screen to hide the real summit) to divide up the computer world between them. Many familiar names like Firebird and Mikrogen and Martech were bandied about like counters on a monopoly board. As were terms like 'spheres of computer game influence', 'geo-political PR positioning' and 'Blitz ad campaigns': What emerged was a top secret agreement that these two shadowy but all powerful organizations divided the whole computer world in halves and simply issue daily orders to the press about what we can and cannot print about anything to do with computers.

I am revealing this dangerous cartel to you at the risk of my very existence. If I'm not here next month you'll know what happened to me won't you? The names are Solutions and Headliners. Learn them by heart and inform the CIA, Scotland Yard and the British Micro Federation. Please now chew up this page and swallow it! Or something terrible may happen to you too!

A Rose by Any Other Name — Stinks!

Tiny Julie Rosen (next to Business Women of the Year, Jane Cavenagh, the largest shareholder in British Telecom (or so our switchboard operator tells us) is going around looking appallingly smug. It seems that the Graphic Adventure Creator produced by Inventive games has now sold one million pounds worth worldwide. As a result, Incentive have received tons of GAC generated adventures and are publishing them under the label Gold Medallion. Tiny Julie says the million pounds sales are entirely due to his enthusiastic review of the GAC.

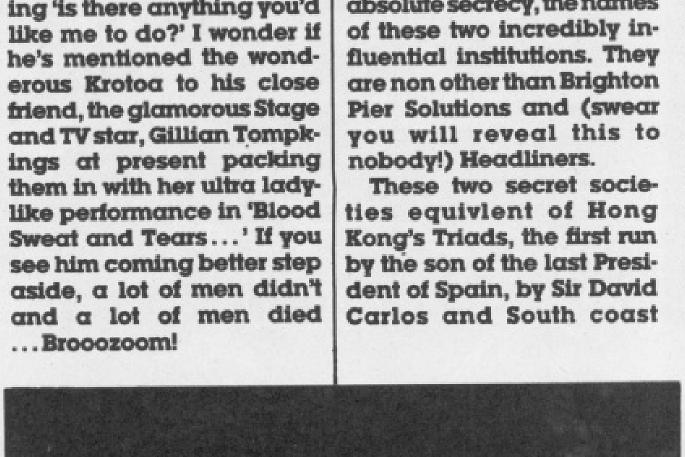
Rubbish, it must be an amazing product for him to understand it with his tiny twisted mind.

Blasted Heath

My Editor piously claims that the CCI curse is not his responsibility. Even if it struck Geoff Heath, erstwhile supermo of Melbourne House. The CCI curse descends on people and companies who disregard or fail to show sufficient respect for our sacred organ.

Why Heath? The editor tells me he once wrote a letter to said. Melbourne House Supermo pointing out that a certain disreputable Commodore Mag had a suspiciously continuous number of exclusive bits of info about the said Melbourne House, and suggesting that CCI, as the Universe's greatest publication should get at least equal access to such gems.

The late Mr Heath couldn't be bothered to answer. And now he is out at Melbourne House. Oh dear, some people never heed the gypsy's warnings (If you cross my palm with gold — not U.S.! — I'll tell you which devil my Ed's in league with).



Sir Andrew Hewson, British Ambassador to Peru, confers with Jeffrey Minter (K.B.E) on boosting Yak imports to Britain.

PRESS
SUPER FELIX

who you are! And why!

Paula's Deflated Balloon

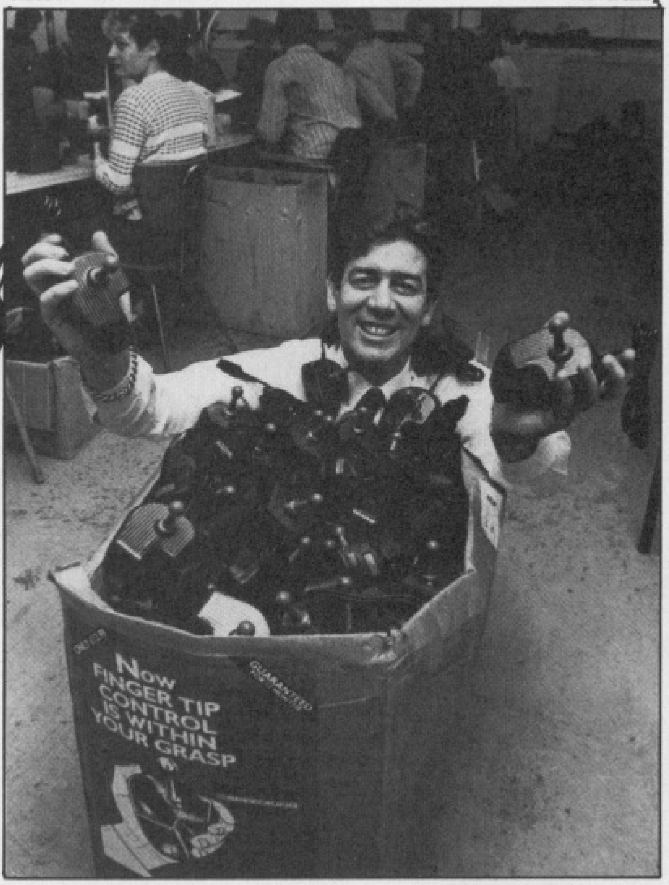
Poor, poor Paula Byrne — out of the Melbourne House frying pan into the Rainbird fire . . . down they got to Telecomsoft — British Telecom's software group. Yesteday Francis Lee of Beyond, today Tony Rainbird of (you guessed it! Rainbird) who has found BT's staggering conglomeration of unwieldy and sadly unleadered software houses Firebird, Rainbird, Beyond, Odin and Thor (sounds like a firm of heavenly lawyers, doesn't it?) too bureaucratic bumbling and possibly too unprofitable to bear and departed in peace. Just when he seemed to be about to get something going too. The redhot buck has passed to Paula (I'm not ambitious, somebody had to take the job, Sob, Sob) Byrne.

When CCI rang BT, a very harassed, senior member of the BT crew virtually screamed down the phone sounding totally distraught 'I'm sorry. I can't talk to anyone! anyone at all! I'm all alone here! I can't even post a letter!"

The executive — no dear we won't give the name unless the bribe is large enough, at least 5 million florints (what the hell is a florint?) sounded so truly close to hysterics that we hung up in sympathy. So short of cash, even with BT's huge resources. Things must really be going from bad to even badder . . .

Poor, poor Paula . . . fancy being dropped into the mess of such a depressing affair. Ah where are the glorious days of arranging the covers of the Abuser over the breakfast table? And is it true that she has already tried to beat a hasty retreat back to Melbourne and had the door slammed in her face? Poor, poor Paula . . . I'm sure she feels like The Pawn in someone else's vicious endgame. A friend who saw her said bitchily, she looked like a deflated balloon. A really cruel description in view of poor, poor Paula's healthily full figure and a description we would never, never repeat in public.

SUPER
FELIX
FLEX


NOW FINGER TIP CONTROL IS WITHIN YOUR GRASP
GUARANTEED

Special offer! Konix are supplying a FREE Managing Director with every joystick. Place your order while stocks last.

The Perils of Pauline

I don't believe all these scandalous stories about Pauline (Endurance) Garsden. Whatever is being said by ill-wishers, she is not the original Leather Goddess of Enfield, Activision's 'lewd level' new game. Nor has she recently been awarded a black suspender belt in International Karage. Nor even can I authoritatively deny, is she now exclusively into a certain demographic age group known as the under C16's. Pauline, as many adoring male Enfielders will attest, is a highly respectable mother of seven, charmingly called, Doc, Dopeyt, Sleepy, Happy, Grumpy, Sneezy and Geoff. Which as somebody said recently when she didn't claim her charity tee shirts; "gets us off the hook". Anyway my close personal links with the passion-filled Pauline allow me to tell you she *never* wears leather. Except at weekends and to intimidate certain people. Which she does most painfully and deliciously. More power to your kinky elbow, Maitresse Garsden.

Once Bitten . . .

My Editor (I am writing this on my knees facing North West London where his residence resides) who was the heaviest jockey ever to ride in the Derby (at 200 kilos, what do you expect, idiot! Ed) is an avid follower of the sport of Kings — horseracing. Hence, he is delighted to find that a new computer game is galloping over that particular track (Ho, Ho very apt! Don't you think?) 'Twice Shy' is a 64 game due to be released by Mosaic and written (I kid you not) by the Ram Jam Corporation.

The game first on cassette at £9.95 is based on the best selling novelist Dick Francis thriller of the same name. Interestingly it is both an illustrated adventure and an animated horseracing simulation which can be played as a separate game. It's a racing certainty that it's a clever idea that I bet (!) will please O.S.E. (our sacred Editor) and all the members of his terribly horsey Jockey Club. (Horses are not allowed in my club, you fool. Though I prefer them to you anytime! They have better manners! And get me a copy of this 'Twice Shy' at once! And get up off your knees. Ed)

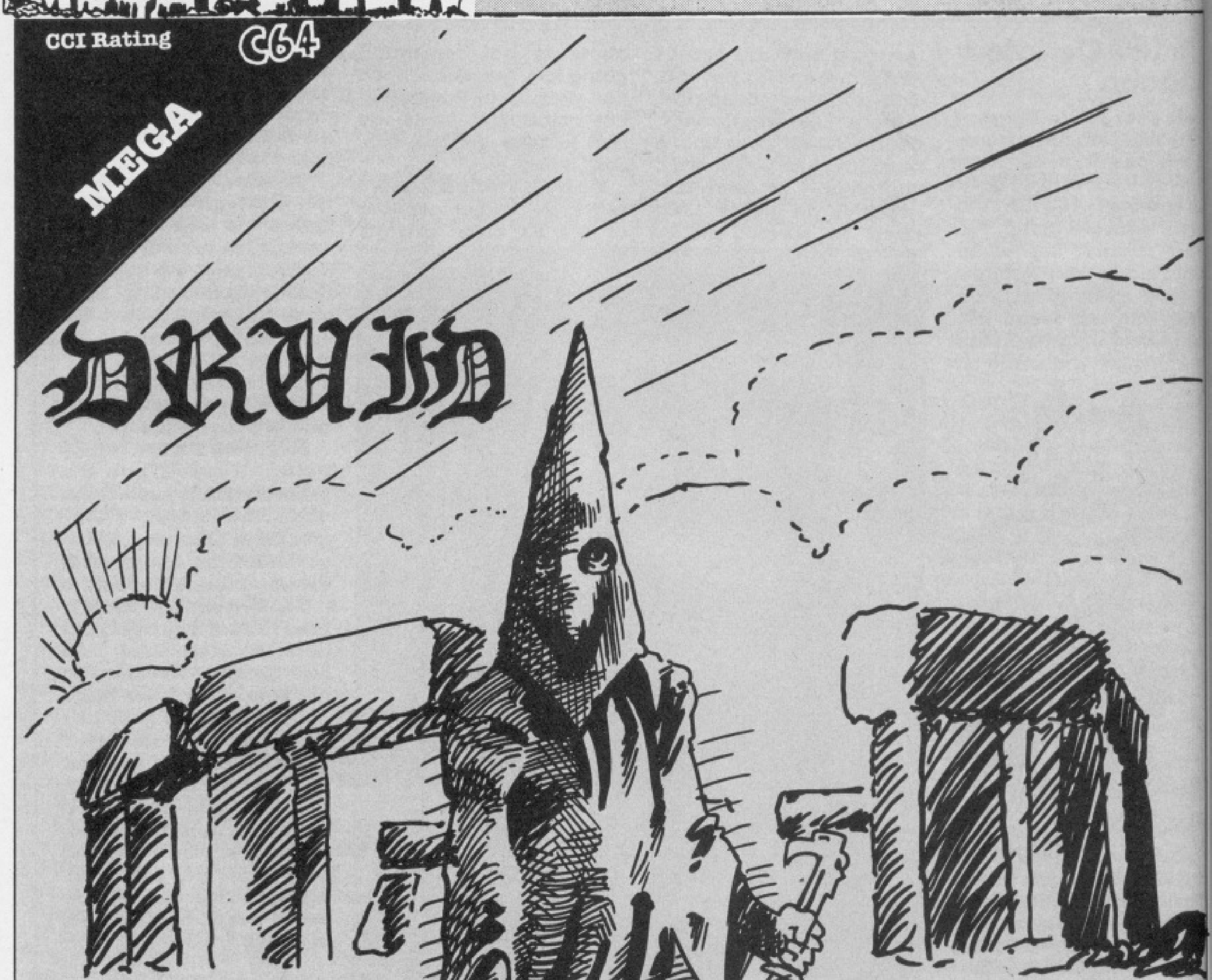
SUPER
FELIX

**Adios,
Amigos!
Felix**

CCI Rating C64

MEGA

DRUID



DRUID FROM FIREBIRD

"Gauntlet? No of course it isn't!" say Firebird! Despite the fact that Firebird strongly deny that Druid is a Gauntlet rip-off, it obviously has strong origins there....

The aim of the game, as the last Druid in the world, is to destroy four skulls which keep the land under an evil spell. To destroy a skull, you need to cast a Chaos spell, and spell-collecting is the central theme in Druid. Other spells include Fire, Water, Electricity, Spells, and Keys. These are used to destroy ghosts, slime, and demons, which hinder you on your quest.

To help you complete the task, and indeed essential to its completion, there is the Golem, a being that can annihalate your foes with a single touch. Although very strong, the Golem is not indestrutable and loses energy with every victory. The Golem is created with a Golem spell, which is pretty hard to come by! In two player mode, the second player controls the Golem (Gauntlet? Nooo...), and in one player mode, you can issue one of three commands to it: Wait, Follow, and Send <direction>. Although more difficult and less fun in one player mode, it is still a good game nevertheless!

Level one is set in a forest, and is fairly mundane. The next few levels (all I could get to!) are set inside and are much more reminicent of the arcade original, and a lot more fun.

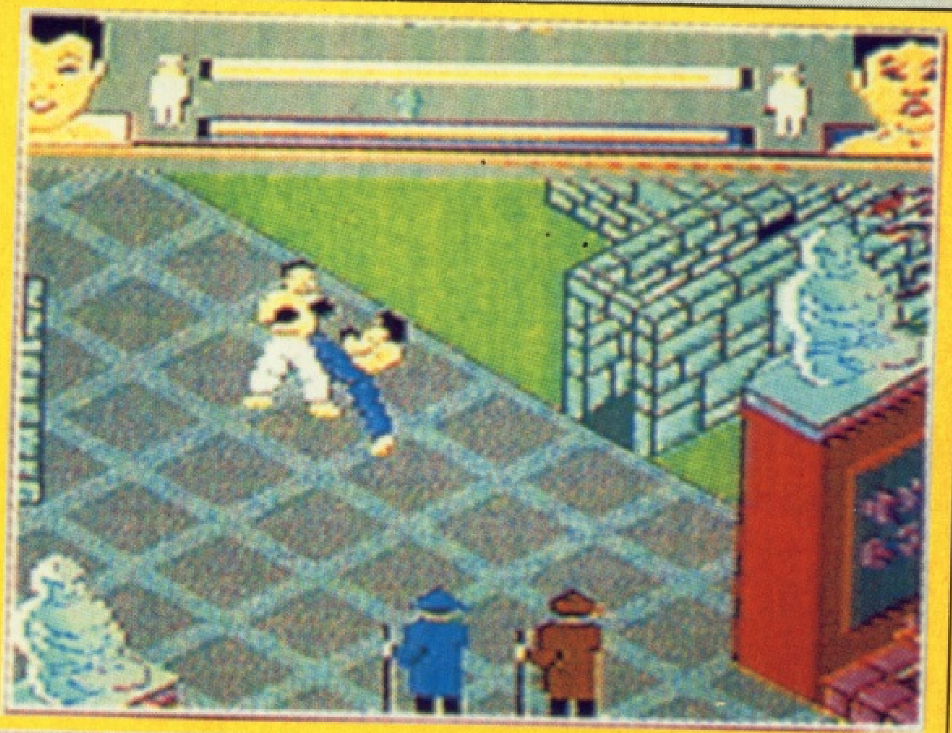
Although not visually stunning, Druid has good sound effects (apart from the title music), and good gameplay. Great for any Gauntlet player!

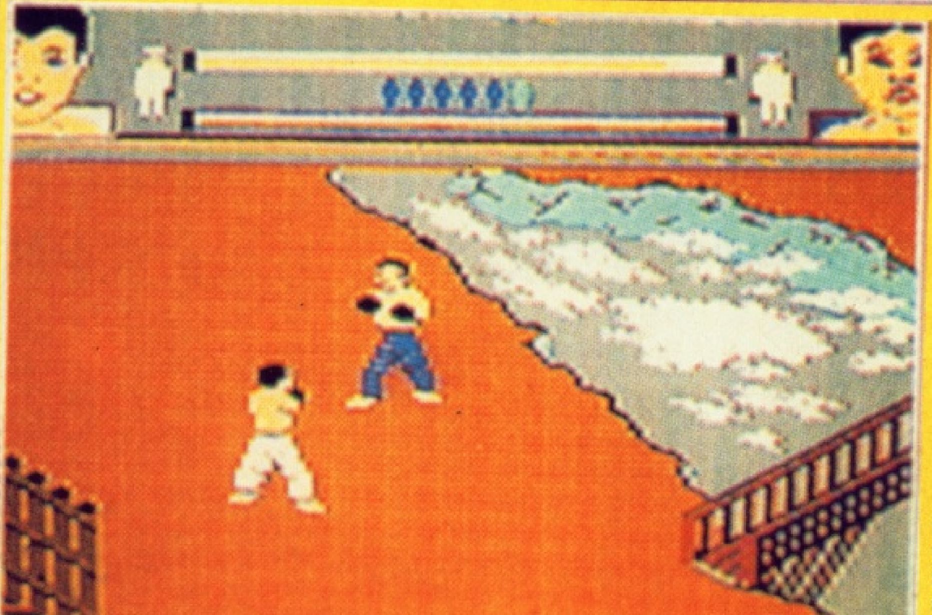
Price: £7.95
Graphics: ★★★
Sound: ★★★
Playability: ★★★★
CCI Rating: MEGA

CCI Rating 64/128

MEGA

THAI BOXING





J.R. SEZ 'EXCELLENT GAME PLAY!'

THAI BOXING FROM ANCO

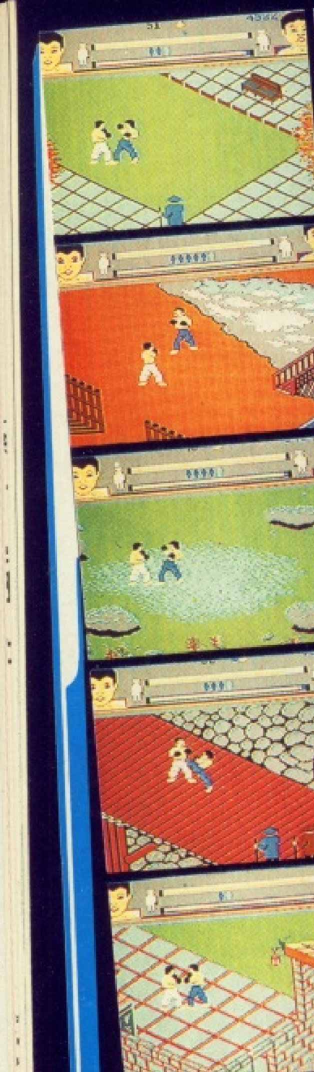
Thai boxing is the most liberal, and potentially violent of all the martial arts. Unlike other competitive sports, in Thai Boxing the aim is simply to inflict as much damage as possible on your opponent in as short a time as possible. It combines the force of boxing with the agility of karate to produce a lethal combination.

There are in fact two versions of Thai Boxing, one for the 64, and one for the 128. They are identical save for the animation. On the 128 hundreds of extra sprites have been added to provide very smooth animation.

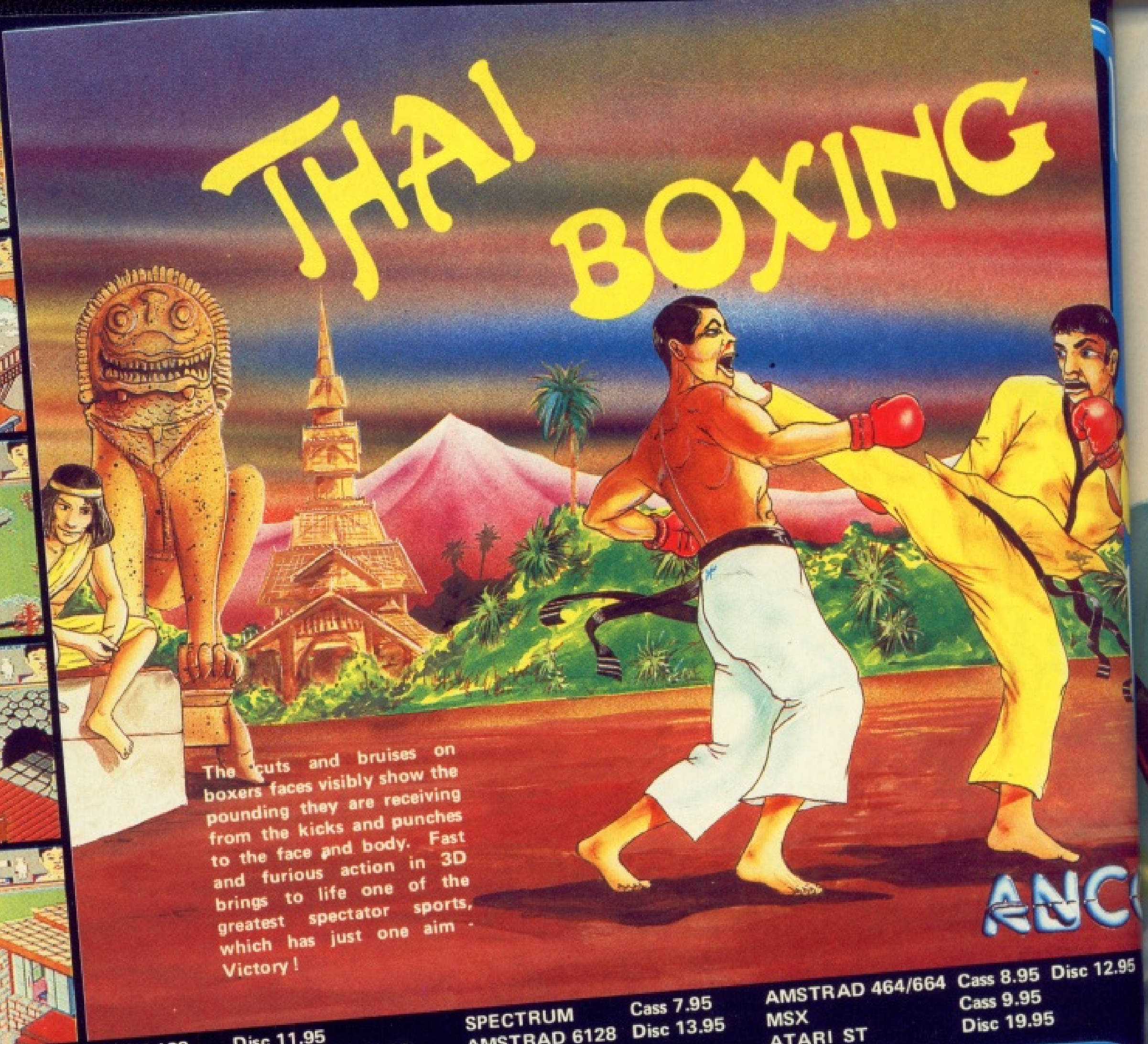
There are six levels of play, progressing in difficulty. Both you and your opponent's stamina are show as a horizontal bar that shrinks as you are hit. On the left and right top corners are two faces, representing yours, which gradually become visibly battered and blood-streaked as you play. At the end of a round, your face is wiped, and you regain some stamina.

Although, as is common by now, there are a daunting number of controls to learn (I'm sure they could stanardise on a lot of them, such as kicks and punches) but again, as is normal, they soon become second (third, fourth?) nature. There isn't really a lot new I can say about another martial arts game except that it's got (here we go again!—Ed) pretty good graphics, nice sound effects, and excellent game play.

Price: C128 disc £11.95 C64/128 £9.95c/£10.95d
Graphics: ★★★★
Sound: ★★★
Playability: ★★★★
CCI Rating: MEGA



CBM 64 Screen shots.



The cuts and bruises on boxers faces visibly show the pounding they are receiving from the kicks and punches to the face and body. Fast and furious action in 3D brings to life one of the greatest spectator sports, which has just one aim - Victory!

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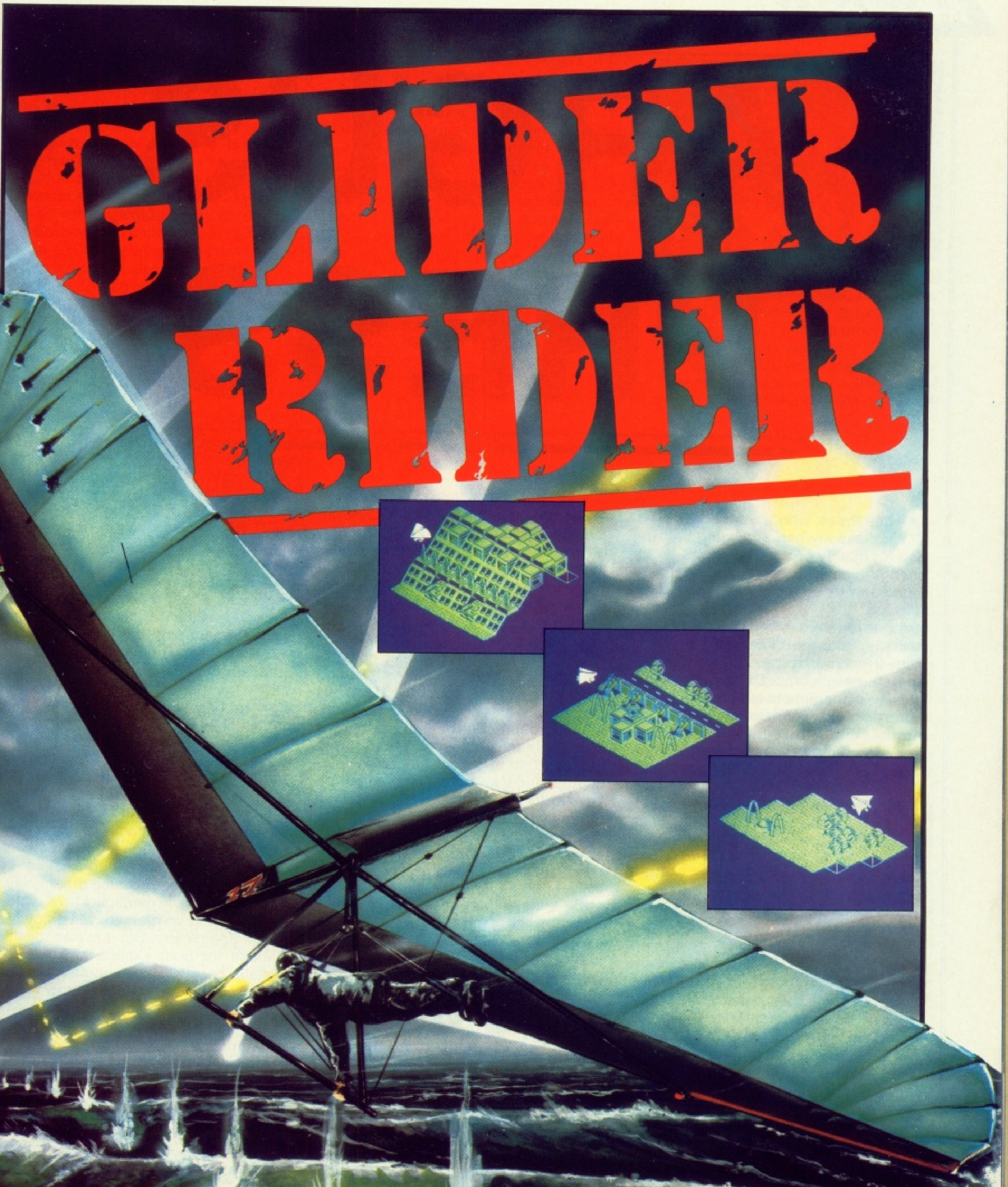

Trained to kill, you must penetrate the defenses of Abraxas, destroy the terrorist H.Q. and glide to safety.

n case of difficulty, Glider Rider
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QUICKSILVA

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ARGUS PRESS

Argus Press, who up until now have not exactly had a glowing reputation for quality products, look all set to change their image over the next few months with some really top quality releases.

Argus have recently appointed a new manager, along with several new staff. With this move of personnel has also come a new "corporate image" which the new management are determined to bring about and look like succeeding in. Argus is rather like Firebird (or Firebird like Argus?) in that under one name it has a host of other companies. Bug-Byte, Lothlorien, Quicksilva, A&F are all marketed and owned by Argus.

Under the Quicksilva label this year are coming some very good releases such as Glider Rider. Glider Rider sets you on an island, your mission to destroy the enemy headquarters deep inside a city. Initially you start on a bicycle (some vehicle eh!), but by going down a hill and quickly turning back up it again once you've acquired enough speed, you can transform your bicycle into a hanglider (hence the name-Glider Rider). You have to enter the city, via the glider, after bombing to bits eight reactors outside of it powering the city. To bomb the reactors, you have to position yourself over them using the glider, and drop, surprise surprise, a bomb on them After the reactors have been destroyed, you can proceed to the city, avoiding tanks and the like to bomb the city's internal reactors and finish the game. Glider Rider has some great music, and rather Ultimatesque graphics. Though these graphics are not all that superb, the gameplay is excellent and highly addictive. Get this one when it comes out!

The other Quicksilva title is DefCom (Defence Command). The background is that of a nuclear-free world, something we all wish for but few doubt will come about. The year is 2001 (original eh! hehe-but what does it matter?!). Star Wars II is a reality... peace reigns and everyone is living "happily ever after". War has ceased; there has been no fighting for years. Then apocalypse. During a shift, one of the operators discovers that the satellites are no longer responding to ground control and one by one they begin to disappear. You are given the last fighter in existence, an antiquated single laser (initially) ship. You have to fly around the world, knocking out fleets of invading aliens when your display notifies you that an area is under attack. Once you have achieved a certain score, a second laser becomes available, which can be used to destroy the now-alien controlled satellites.

The game is basically a good shoot 'em up, with fast graphics, and excellent music. To see your score and view your options such as laser select, you "pop-up" windows which display a menu list. Windows also display the radar scanner. Of course, these don't obscure the gameplay, as the aliens move over, not under the window; nice idea!

Underneath the action, the world rotates, if rather jerkily (motor-drive camera? hehe). You have 80 seconds to get the first 1000 points, and if you get them within 160 seconds (red alert) you are given a second laser. Quicksilva (Argus) have another winner here!

From Lothlorien we have what might be the first rally user-friendly war game. Most connoisseurs of war games will scorn any hint of user — friendliness and ease of use in a war game, but didn't the British scorn Japanese motorcycle imports, and look what happened to them....

Legions of Death comes with a very large manual and is extremely complex. The scene is the Carthage-Roman wars being fought across the oceans. Before you start playing you have to equip and purchase your ships, gathering crew, slaves, marines, defences (towers, rams etc), rations, and sails. Gold is also pretty useful for bribing.

Then you position your fleet, preparing for the Roman attack, and readying your command for the offensive. In the one player game you control Carthage, but it really is best with two players.

Controlling the game is very very easy, all done through icons which are becoming increasingly popular.

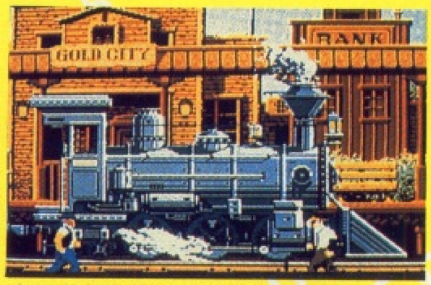
Legions of Death is nice graphically, in presentation, in gameplay (even veteran computer wargamers will enjoy it), and in complexity. But it is also ideally suitable for both experts and professionals, because you yourself can set victory conditions, reliant on how much gold you have collected, and other statistics that can be used. Very highly recommended.

Also coming out soon is Xeno, a hockey-type game played with an explosive puck, that looks set to reach the charts, and StarTrooper, an Australian game written by the same author as Ollo from Bug-Byte, which is VERY Commando-ish. Luckily its a good copy!

Argus Software is certainly getting better, and is shedding its image of being slow, boring and unappetising. Good luck to them in the future!

US GOLD GAMES

US Gold is probably most famous for its American Imports, and their resulting conversions mostly from Atari or Commodore to Spectrum and Amstrad. However, recently they have begun to write programs in-house rather than merely acting as a marketing and distribution company. Coin-op arcade conversions seem to be featuring high on their list of games, the most famous of them being Gauntlet; a game which now has a cult following in the arcades, and into which people pour vast amounts of money. Unlike many other games, with Gauntlet you did not have a set number of lives, but rather 'strength'. If you strength reaches zero, you die. However, by inserting more coins you cna raise your strength. The ability to do this, coupled with the ability for four players to play simultaneously, meant that more money went into Gauntlet than virtually any other machine.



The Commodore 64 version will only have a 2 player option, for very sensible reasons. Firstly, there are only two joystick ports, and secondly, the 64 could probably not handle more than 2 playing at once. There are limits to what the VIC-chip and the 6510 can handle...

The game is actually being coded by two of Gremlin Graphics programmers. In a future issue we will be featuring a preview of Gauntlet, along with a conversation with the programmers. Sounds good...

Xevious is another conversion, due soon, and is based on the coin-op of the same name. This is one arcade game that the 64 ought to be able to handle well, as it is totally based on a vertical scrolling background, with sprites moving above it. Xevious is a classic shoot 'em up, but with good graphics and nice sound effects to go with it. One the background are situated tanks, missile silos, and other engines of destruction. These can be bombed to disable them. Flying through the air towards and around you are projectiles, and enemy craft which you have to shoot quickly. Some of them move very deviously (or should that be xeviously) and getting anywhere in this game takes a lot of practice.

A licensing agreement has been successfully struck with Matel, the toys and once — Intellivision Games Console manufacturers, who's last attempt at home computing, the Aquarius Computer ended with disaster. Masters of the Universe, featuring the man with the incredibly stylish hair-cut who can move mountains is being written. This isn't due for release for some time now, but should prove interesting...

US Gold say that many other first-end products are being planned with, they say, a distincting rise in quality, and they have releases planned up until Easter '87. One interesting product is a compilation for the Christmas market called Platform Plaza. Platform Plaza will be a tape full of platform games such as Manic Miner, and is the first in a line of compilation tapes.

Of course, just because US Gold are starting to write their own games doesn't mean they've stopped importing and distributing American software. New from Epyx, the company that brought you Jumpman, is US Gold's first (and only?) Amiga game— Temple of Apshai. Coverted from the classic animated role-playing game of the same name on many other computers, including the 64, Apshai is to be given a new lease of life on the Amiga with much enhanced graphics and sound features. The reason for the 'and only?' question was because at its current price, US Gold don't believe that the Amiga will be a success. We'll have to wait and see...

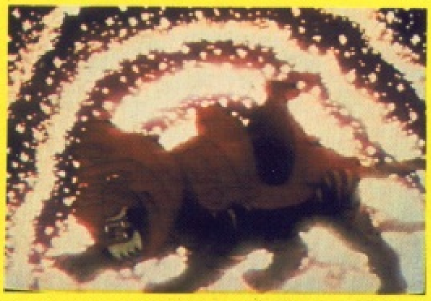
On the 64, Super Cycle and Hot Wheels have been launched, Super Cycle receiving a lot of acclaim. Super Cycle is a 'bike racing program with excellent graphics and sound, and Hot Wheels is a custom hot-rod design kit. Design your own car from available components, or choose one of the ready made ones. Then drive the car about, moving from town to town via the expressway (American term for Motorway). In the towns you can perform a number of 'exciting' things, such as parking your car, or getting it washed, or changing it for a fire engine! If this is aimed at the young setg, they'll have to be very young indeed and have an extremely high boredom threshold not to become tired of this within the first 30 minutes...

Not a game, but still from Epyx is the Vorpal utility kit, featuring a disk turbo 25 times faster than a 1541 amongst other things. Before you get excited, this turbo only works with disks format-

ted with the Vorpal program, so is ideal for program development, but not for loading commercial games unless software houses adopt it and incorporate it in their games themselves.

A deal with US software house Broderbund, of Loderunner fame, one of the only games ever to be converted FROM computer to coin-op, has been signed giving US Gold access to many first-class products. No actual releases have been officially announced yet, but expect some news soon.

The Americana range is selling well, and we were quoted 300,000 units as having been sold since its launch. Americana "Licensed to thrill" is US Gold's budget priced label, but some of its products are certainly not budget quality. A few people may remember Hes-Games, a sports simulation originally sold by now defunct US company, Hes-Ware-the people who used to distribute Llamsoft's programs in the States. US Gold have launched Hes-Games under the Americana label for the ridiculously low price of $2.99. Value for money, this is incredible for a game such as this which used to sell in the States for over $25!



US Gold looks to be expanding even more into in-house programing. Is this because they are unsure of their American licensors, or because they wish to become number one in yet another field? Give it 12 months and have another look then...

GREMLIN

ALWAYS AHE

Footballer of the Year

The game to answer every boyhood dream – the chance to make it to the very top of football stardom. Starting on your path to glory as a 17 year old apprentice with a Fourth Division team and only £500 and 10 goal scoring cards in your pockets, the footballing world is at your feet. Adopt the identity of a professional footballer and develop a career through the ups and downs of match days, transfer deals and injuries etc. Display your talents in Football League, U.E.F.A., F.A. and Milk Cup games and then if you're good enough the ultimate accolade of your sport, the Footballer of the Year Award.

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C16 + 4 MSX Spect
£6.95 £7.
Amstrad, BBC/Elec
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£9.95

Aveng
C16 +4 CB
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£9

First came "The Way of the Tiger" the martial arts classic in which you had to prove your physical skills to become a Ninja. Now you have to prove your supreme mental agility in the second part of the Way of the Tiger saga "Avenger", the ultimate arcade adventure. Yaemon the Grand Master of Flame has assassinated your foster father Naijishi and stolen the Scrolls of Kettsuin. You have sworn to the God Kwon that you will avenge Yaemon's murderous act and recover the sacred scrolls. Your enemies are many, varied and all are deadly. All your skills courage and nerve will be called upon when you begin the final conflict in the Great Keep. Good Luck... only the brave hearted will survive.

Avenger (Way of the Tiger II)

Available November

Gremlin Gr
Alpha House, 10 Carve

AHEA F THEIR TIME

f the Year	ture Knight	Trailblazer
SX Spectrum	C16 + 4	MSX Spectrum 48K
£7.9	£6.95	£7.95
BBC/Electron BM 64/128	CBM 64/128 Amstrad	
.95	£9.95	
Avenger	Disk	
+4 CBM 64 X Spectrum Amstrad	mstrad Disk CBM 64/128 Disk	
£9.9	14.95	

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FUTURE KNIGHT

Future Knight

Arise Sir Randolph to take up the challenge of death that has befallen the fair maid Amelia, held in the evil clutches of Spebott the Terrible. Acting upon an inter-dimensional distress signal from the galactic cruiser SS Rustbucket, don your Omnibott Mark IV attack suit and venture forth in pursuit of your beloved's captors. Defend yourself nobly against the Berzerka Security droids. Fight your way through 20 gruelling levels onto the planet's surface into Spebott's castle where the fate of Amelia lies with the outcome of your mortal combat with the awesome Henchodroid. Is there any gallantry and bravery left in this modern day universe?

Available November

TRAILBLAZER

Thunder into the unknown at a breakneck speed, pushing your reflexes to their limits in this definitely exhilarating journey that's not one for the fainthearted. Roll left, roll right avoiding the endless chasms of doom that lay in and around the squares of mystery. Squares that will sometimes slow your progress, on occasion with fatal consequences and sometimes speed up unexpectedly or make you jump automaticaly. Keep a keen eye on the clock as the quicker you complete your task the higher will be your bonus. CBM 64 version is an amazing 2 player simultaneous game. Amstrad Disc version contains extra features.

Trailblazer

B ler

£95

Availa vember

Way e Tiger

£95

Availa vember

hing Spring

£95

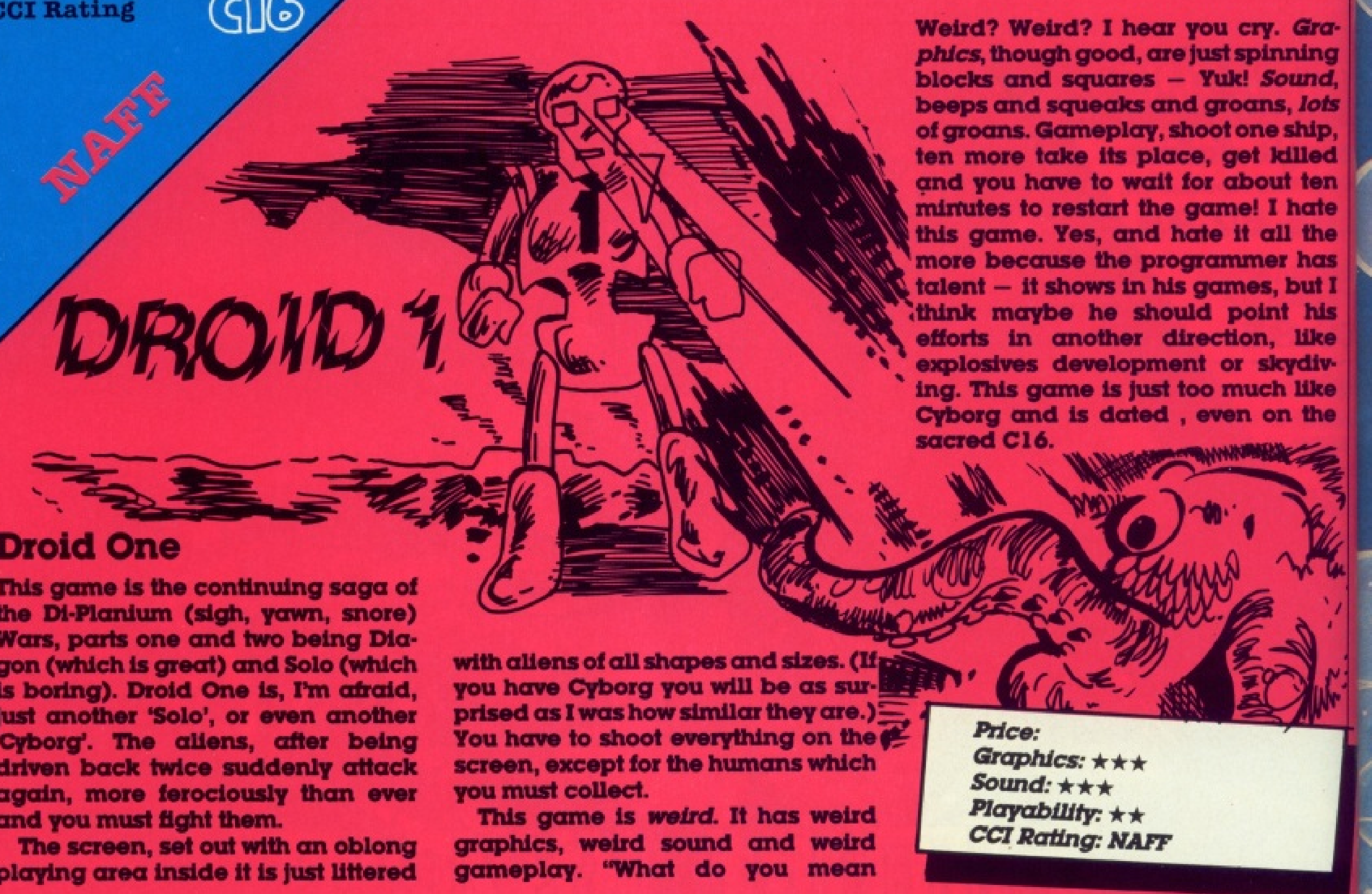
Avail cember

lin Graph tware Ltd.,
arver St effield S1 4FS. Tel: (0742) 753423

Available November

CCI Rating C16

NAFF



Droid One

This game is the continuing saga of the Di-Planium (sigh, yawn, snore) Wars, parts one and two being Diagon (which is great) and Solo (which is boring). Droid One is, I'm afraid, just another 'Solo', or even another 'Cyborg'. The aliens, after being driven back twice suddenly attack again, more ferociously than ever and you must fight them.

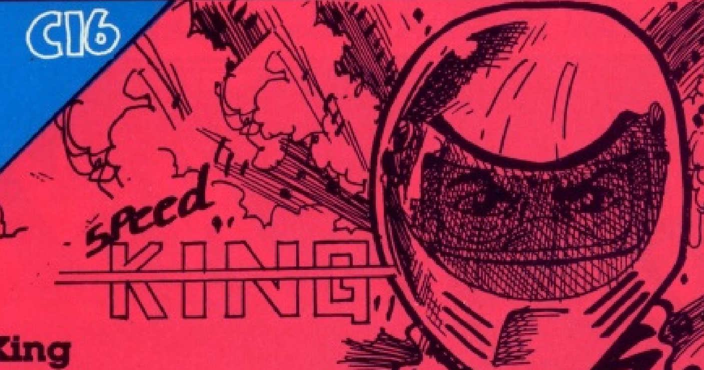
The screen, set out with an oblong playing area inside it is just littered with aliens of all shapes and sizes. (If you have Cyborg you will be as surprised as I was how similar they are.) You have to shoot everything on the screen, except for the humans which you must collect.

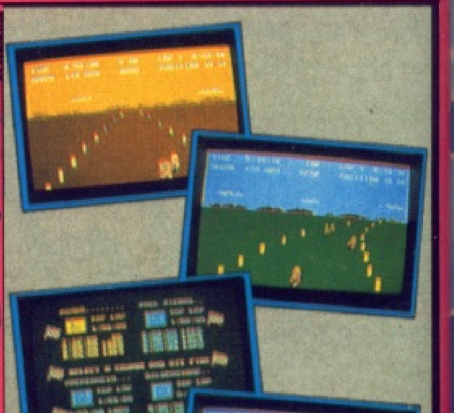
This game is *weird*. It has weird graphics, weird sound and weird gameplay. "What do you mean Weird? Weird? I hear you cry. *Graphics*, though good, are just spinning blocks and squares — Yuk! *Sound*, beeps and squeaks and groans, *lots* of groans. Gameplay, shoot one ship, ten more take its place, get killed and you have to wait for about ten minutes to restart the game! I hate this game. Yes, and hate it all the more because the programmer has talent — it shows in his games, but I think maybe he should point his efforts in another direction, like explosives development or skydiving. This game is just too much like Cyborg and is dated , even on the sacred C16.

Price:
Graphics: ★★★
Sound: ★★★
Playability: ★★
CCI Rating: NAFF

CCI Rating C16

IFFY





Speed King

If the title of this game is familiar to you it's because it was once a full price game on the sixty four. Now Mastertronic have converted it and re-released it for the C16 at one fifth of its original price. Not bad eh?

You are put in command of a six geared motorbike with a top speed of two hundred and forty miles per hour. (That's slow for you, isn't it? Ed) Learning to control it is rather difficult as each time you want to change gear you have to push the joystick forward. This means when you push it forward once you have to pull in your joystick back to the centre position again. It feels totally unatural and is very awkward. Anyone who has a mobile will through it out in disgust.

There are four courses to choose including Silver-stone. The only difference between them though are the backgrounds which vary from a blue sky with nice green grass (grass on a racing track? Unusual) to yellow sky on a clay racing track (clay? I know, I know. Also unusual for a racing track)

When you start racing you are placed in twentieth place and you have five laps to gain pole position, at the end you are given a fastest lap time and your end position.

The graphics are okay especially when you lean into the corners but they could have made more effort with the sound. Overall a fair game but it's a bit too much like Formula One for my liking, and it's nowhere as addictive.

Price: £1.99
Graphics: ★★★
Sound: ★★
Playability: ★★
CCI Rating: Iffy

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TEA FOR TWO

SIMULTANEOUS TWO PLAYER ACTION

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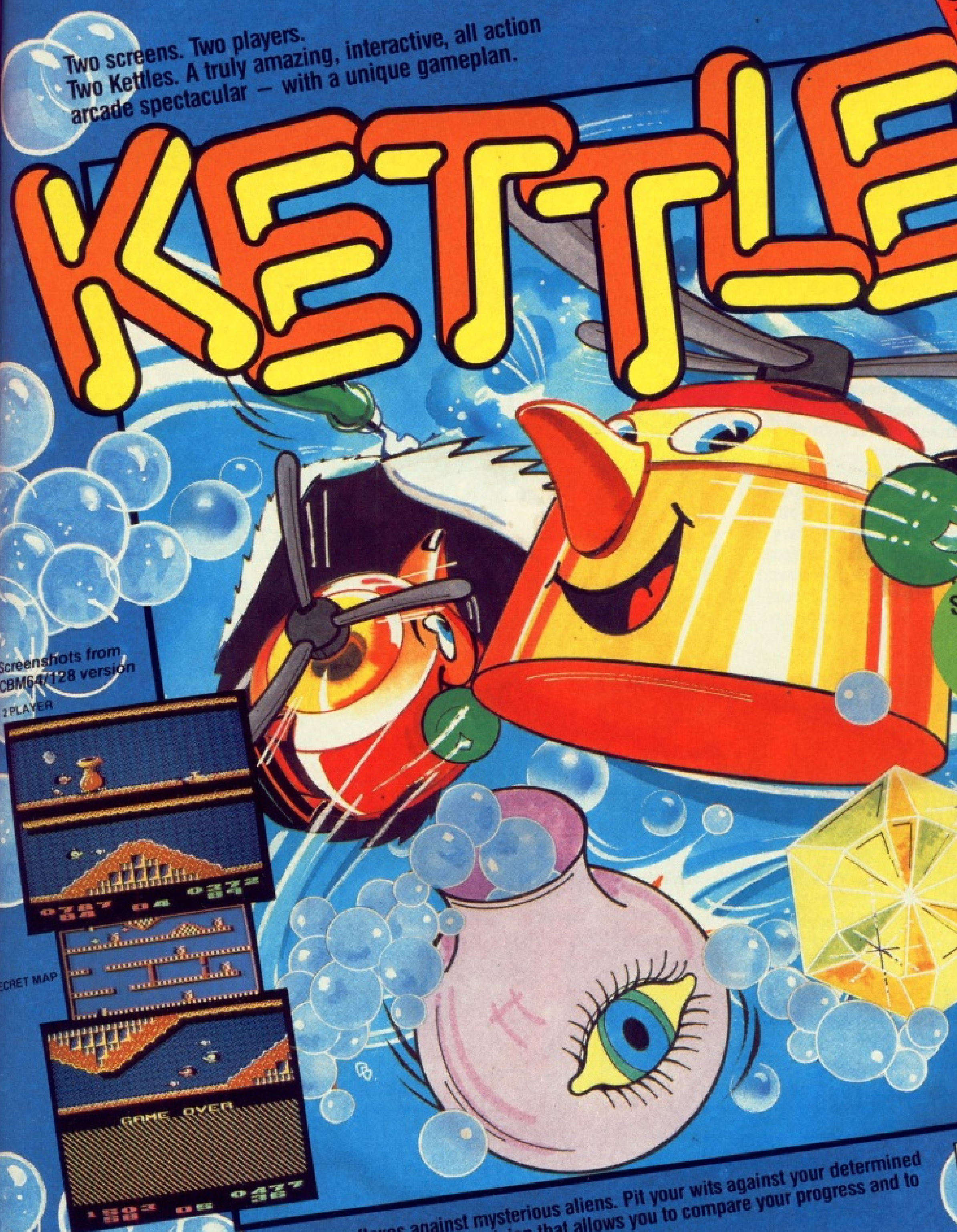
Two Kettles. A truly amazing, interactive, all action arcade spectacular – with a unique gameplan.

KETTLE

Soundtrack created by W.E. Music Ltd.



Tony Crowther

Test your reflexes against mysterious aliens. Pit your wits against your determined opponent with split screen vision that allows you to compare your progress and to help or hinder his.

Tape CBM 64/128 £8.95 AMSTRAD £8.95

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ALLIGATA BITES BACK

AMSTRAD CBM64/128 AMSTRAD CBM64/128 AMSTRAD CBM64/1 TRAD CB

CCI Rating C64

CRISP

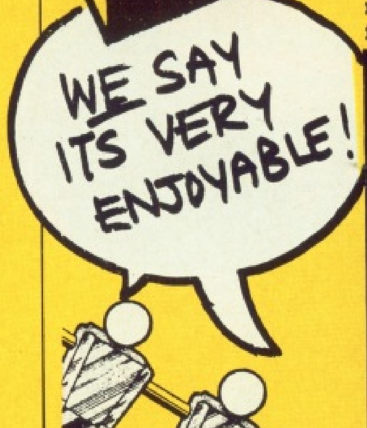
PUB GAMES
Nike

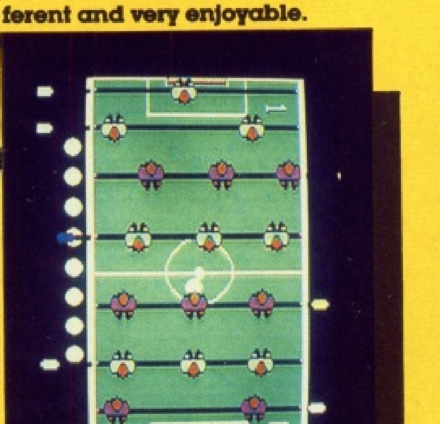
PUB GAMES —ALLIGATA

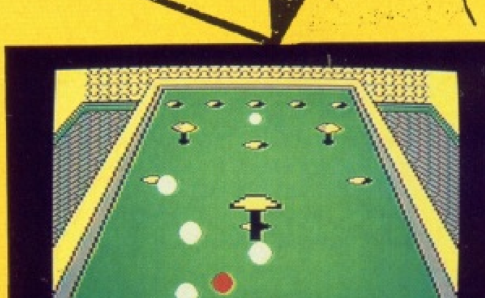
Pub Games is a kind of decathlon of events without the hassle of broken joysticks. There are seven events, which include Darts, Bar Billiards, Dominoes, Table Football, Pontoon, Poker and Skitties. Pub Games is really a game for two players as it is a bit hard playing by yourself. Each game is played for money and the player with the most money at the end is deemed the winner.

Darts and Bar Billiards are both a bit slow and even tedious to play, but the other are much better, with both Pontoon or Dominoes being very good indeed. The computer keeps score for you so you won't argue over whose winning. Table Football does have one good point. When someone scores a goal it flashes up "Goal for player 1". Each game is loaded separately which got to me a bit.

The graphics are fairly beefy which does compensate a little for the rather basic sound. Pub Games is different and very enjoyable.







Price: £9.95
Graphics: ★★★
Sound: ★★★
Playability: ★★
CCI Rating: CRISP

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ZAP!

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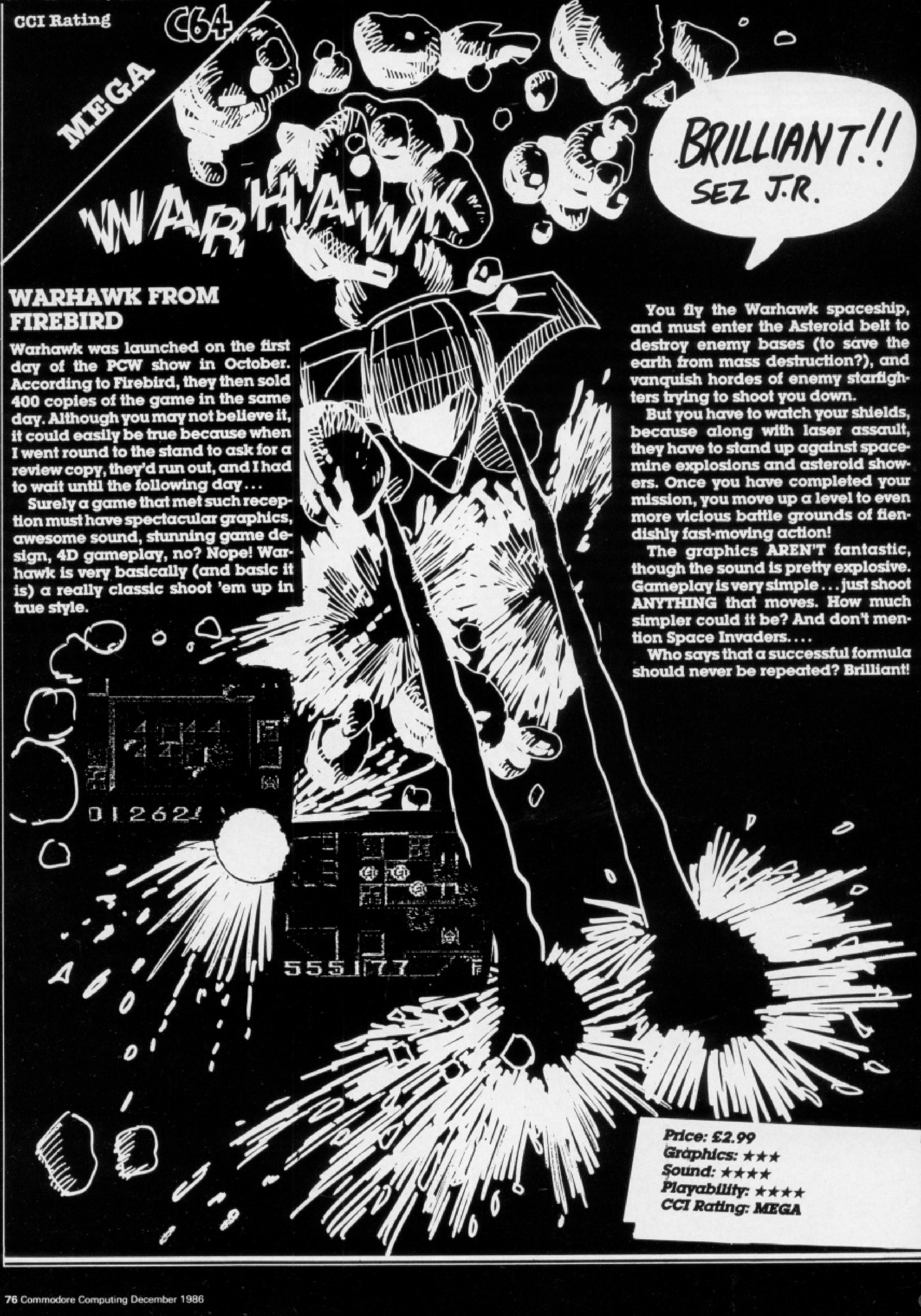
CCI Rating

C64

MEGA



WARHAWK FROM FIREBIRD

Warhawk was launched on the first day of the PCW show in October. According to Firebird, they then sold 400 copies of the game in the same day. Although you may not believe it, it could easily be true because when I went round to the stand to ask for a review copy, they'd run out, and I had to wait until the following day...

Surely a game that met such reception must have spectacular graphics, awesome sound, stunning game design, 4D gameplay, no? Nope! Warhawk is very basically (and basic it is) a really classic shoot 'em up in true style.

You fly the Warhawk spaceship, and must enter the Asteroid belt to destroy enemy bases (to save the earth from mass destruction?), and vanquish hordes of enemy starfighters trying to shoot you down.

But you have to watch your shields, because along with laser assault, they have to stand up against spacemine explosions and asteroid showers. Once you have completed your mission, you move up a level to even more vicious battle grounds of fiendishly fast-moving action!

The graphics AREN'T fantastic, though the sound is pretty explosive. Gameplay is very simple... just shoot ANYTHING that moves. How much simpler could it be? And don't mention Space Invaders....

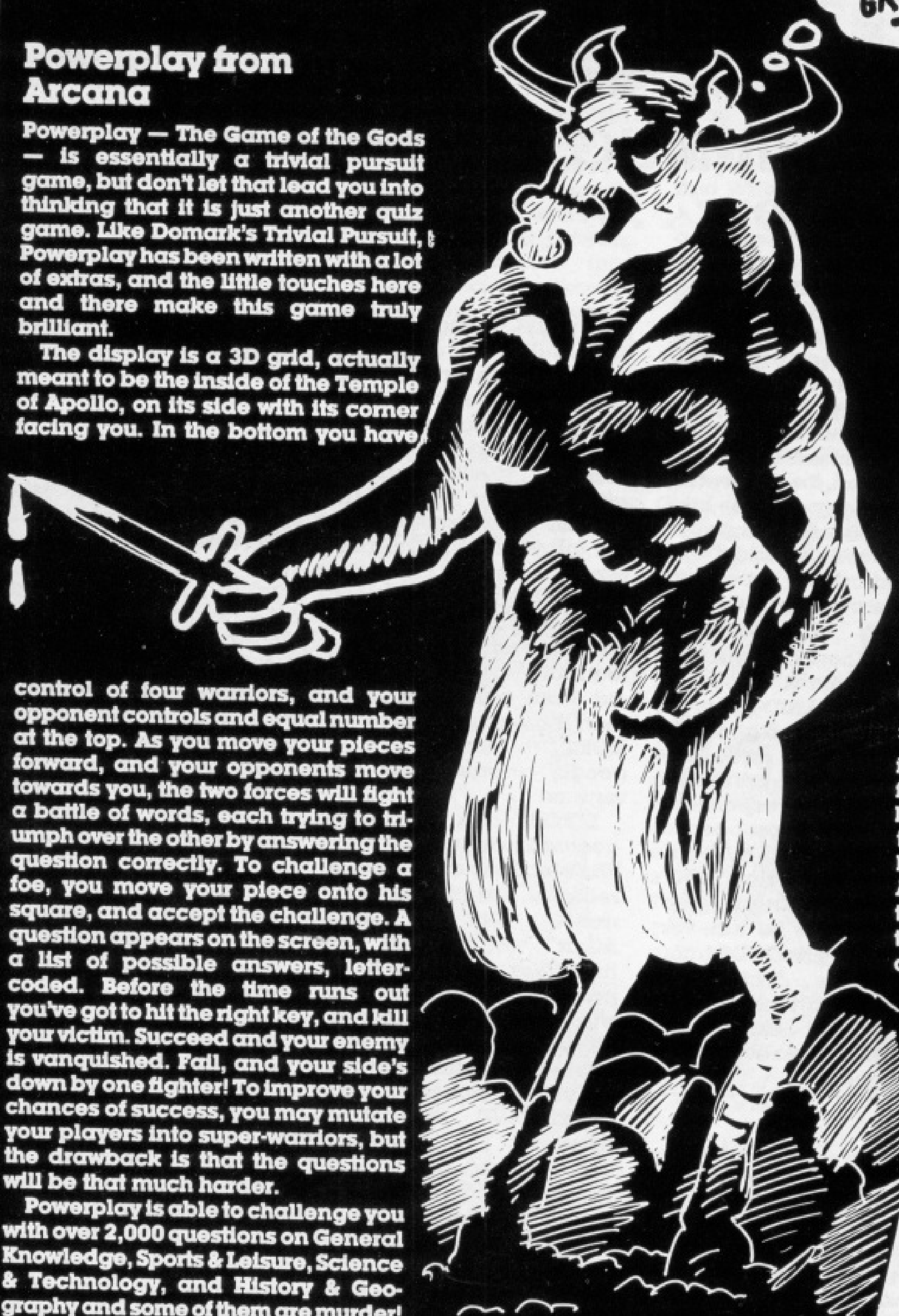
Who says that a successful formula should never be repeated? Brilliant!

***Price:* £2.99**
***Graphics:* ★★★**
***Sound:* ★★★★**
***Playability:* ★★★★**
CCI Rating: MEGA

CCI Rating C64

MEGA

POWERPLAY THE GAME OF THE GODS


GREAT FOR PARTIES!
SEZ J.R.

Powerplay from Arcana

Powerplay — The Game of the Gods — is essentially a trivial pursuit game, but don't let that lead you into thinking that it is just another quiz game. Like Domark's Trivial Pursuit, Powerplay has been written with a lot of extras, and the little touches here and there make this game truly brilliant.

The display is a 3D grid, actually meant to be the inside of the Temple of Apollo, on its side with its corner facing you. In the bottom you have control of four warriors, and your opponent controls and equal number at the top. As you move your pieces forward, and your opponents move towards you, the two forces will fight a battle of words, each trying to triumph over the other by answering the question correctly. To challenge a foe, you move your piece onto his square, and accept the challenge. A question appears on the screen, with a list of possible answers, letter-coded. Before the time runs out you've got to hit the right key, and kill your victim. Succeed and your enemy is vanquished. Fail, and your side's down by one fighter! To improve your chances of success, you may mutate your players into super-warriors, but the drawback is that the questions will be that much harder.

Powerplay is able to challenge you with over 2,000 questions on General Knowledge, Sports & Leisure, Science & Technology, and History & Geography and some of them are murder! The program also includes The Question Compiler which allows you to put together your own database of questions. My only reservation is the speed it requires you to answer. Some players may find trouble reading all the possible answers and finding the right letter on the keyboard before the time is up. I suspect that the game was writien and tested by experienced keyboard-bashers. Apart form this gribble, this is a game that everyone should enjoy, and with the option to compile your own database, is great for parties. . . .

Price: £9.95c/£14.95d
Graphics: ★★★
Sound: ★★★
Gameplay: ★★★★★
CCI Rating: MEGA

The The The
MUG MUG MU
Page:Page:Pag

By the two Arch-MUG's themselves . . . Kate and Frobozz . . .

Here we are, back again with all the news and views from the land of the Multi-User Games!

After our last bit in this august publication, we had a little chat with the original 'Arch to end all Arches', Richard Bartle, he who wrote most of the first Multi-User Game, MUD. He wanted us to point out that to the best of his knowledge, no-one from MUSE had ever issued 'Kill on sight' instructions about reviewers who wrote bad reviews of MUD-2. Perhaps our mole's vision is deteriorating! Richard did admit that someone said some nasty things about a certain magazine (Personnel Computnig Words, or something, we think they call it) but insisted it was meant as a joke! Honest Injun!

After our last bit of bad news for Essex MUD players (flashback: "You're all Novices!") Richard gave us a bit of good news. He promises that, barring action from the University authorities, the original (and free!) MUD at Essex will remain running for all who are willing to wait up till 2.00 am, when it currently comes online. Richard said that he thought it would be immoral to get so many people addicted to the game, and then force them to pay for it! Good for him we say! The people at MUESli (that's "Multi-User Entertainment Limited Incorporated, the wholewheat games company, tee-hee!) are confident that people will be willing to fork out the old crinkly green beer vouchers for the privilege of playing at reasonably sociable hours. On a similar note, Richard thinks it unlikely that MUD-2 charges will be increased above the current £1/hr rate (they were originally going to be £2/hr) as the response at the new rate has been so good. What does Mr Bartle think about the rival MUG's that are springing up? Well, he says he was very impressed with GODS (more on that later . . .), and thinks that competition from other MUG's like GODS and SHADES will do everyone a lot of good!

MUD is about to stage an invasion! Richard, and everyone else at MUSELI are keenly anticipating the latest deal they have made, to put MUD up on American Mega-Network CompuServe. Compuserve happens to use the DEC-10 mainframes that MUD was originally written to run on, so, like Compunet, there are only minor modifications needed to get the game up and running. The Americans will suddenly be hit with the full addictive force of the original MUD (no preservatives added), straight between the eyes, poor souls! Richard also points out that there are quite a few more potential players out there in Reagan-Land than there are over here, so MUESli is hoping for a goodly revenue from the venture.

MUESli and Compunet decided to hold some Arch-Wiz elections at Compunet recently (at rather short notice, after the "Lotus Affair" we reported last time). Yes, you guess it! We prophesised right! (and we wuz only kiddin' honest Simon!). Lotus and Plod have been elected (in that order) as Arches in Compunet MUD. Everybody's favourite, Mogg, gained third place, and those, together with Bella and Johnk (the Compunet presence) are the new force to be reckoned with in Cnet MUD. Just shows, truth really is stranger than fiction sometimes, innit?

Undeterred by Kate's experience, Mogg is going to run a Spectacular (where everyone goes round killing everyone else!) on Oct. 26 (so by the time this comes out you may know the results!). People who braved the last Speccy will be pleased to know that it (and all future spectaculars) will be played by the rules thrashed out by us (together with Zaphod, Peter and Richard). We emphasise this partially because the rules we put onto Compunet have now been attributed to Johnk, and he wouldn't want anyone thinking he actually wrote them, would he?

We thought it was a good time to give everyone an update on GODS, the undisputed best of the independent (i.e. non MUESli) MUG's. We had a chat to the infamous 'Tiger Tiger' who has spent a over a year working on the concept, and the system to run it on. Lap Of the Gods (Tiger's roaring company) is currently looking at ways to expand beyond the current 8 lines it has, and get more exposure for the game, something it certainly deserves! We went on the game to take a look for ourselves, and found that even without any advertising, GODS has a fair number of players (we saw 6 or 7 people come and go when we were on, well after midnight, and you often don't see that many on big systems like Compunet), most of whom are new to MUG's, rather than being refugees from Essex MUD or MUD-2. The game philosophy is very strange to staunch MUDders like ourselves, but it is very refreshing, and has some good answers to some of the problems that MUD faces when people abuse its wiz powers. The wiz equivalent in GODS is, not surprisingly, a God. Gods must be worshipped by mortals to sustain their powers, and so they are accountable for their actions (though they could try scaring people into making offerings!). Tiger's philosophy is to make the game as self regulating as possible, thus obviating the need for all powerful 'Arches' to keep the nasty wizzes in line. There is a complicated hierarchy to be observed at the temples of the Gods, where priests and acolytes pass offerings on, until they finally reach the Gods, if this is done correctly, everyone in the chain gets experience points for it! There are fighters and fighting in Gods, but, unlike MUD, there are no points for killing other players, so there is less mad mayhem! The whole feel of Gods is very fresh, when played by old MUD diehards like us, and we think that it will appeal to people who have become bored with MUD, as well as totally new MUG players. Commodore owners may be seeing a lot more of GODS in the near future, if rumours we are hearing are correct.

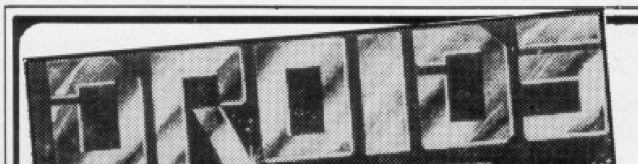
A quick SHADES update: the game is now successfully running on Pretzel, but due to a few teething troubles with the linking and charging mechanism, it still isn't being charged for! When it is finally fully running, it will cost 99p/hr, but we all hope the teething troubles last as long as possible! (hehehehe!).

In the 'fame at last' department, a quick hello to Hercules, Aiken (Kate sends him a big kiss!), Piccolo (who we hope to be meeting soon!) and Alice (who has recently been spotted playing after a long interval, and was the first Witch on Compunet!). A big 'hello' also to Smith and Jones, who after being mentioned in our last piece have had their passwords confiscated by Lotus, in her new Arch-Witch guise. Zircon and Balinor (no need for the stars this time) are pressing to get them back, so they can stage a public execution, where all the personas they have killed can get together and murder them! What a way to go! Very fitting for such well known (and feared!) berserkers. There is nothing actually wrong with what Smith and Jones are doing, and we think that they are taking everything in a very good spirit. We hope everyone involved will press the new powers that be to allow this execution, and so fulfill the last wishes of the soon to be legendary Smith and Jones (and their aliases!).

That's it for the MUG Gossip mill for this month. See you on the game!

Kate the Witch has disappeared in a puff of Chanel No. 5!

Frobozz the Wizard has just disappeared in a puff of Smoke! (probably from his wordprocessor!).



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C.C.I. Sept. '86

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COMMODORE USER SEPT. '86

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AWESOME?
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Check for Yourself!

Bulletin 1000 Bigger Than Ever!

This month, building up to the boom season at the end of the year, Bulletin 1000 is piling even more games into its video. Everyone is saying that 'seeing is believing' and one of the best ways to judge a game is to see it on Bulletin 1000 before you buy it.

A little bird (no, not that sweetie-tweetie Julie Inskip. Wow Factor She!) tells me that you can even see Bulletin 1000's video in W H Smiths. It's in Germany too! On the moon next, Sir Martin?

List of games and companies

Highlander	**Ocean**
World Games	**U.S. Gold**
Trivial Pursuit	**Domark**
Alleykat	**Hewson**
Camelot Warriors	**Ariolasoft**
Hardball	**Advance Software Promotions**
Streethawk	**Ocean**
Parallax	**Ocean**
Infiltrator	**U.S. Gold**
Thanatos	**Durell**
Big 4	**Durell**
Uchi-Mata	**Martech**
Dan Dare	**Virgin**
Marble Madness	**Ariolasoft**
Zythum	**Mirrorsoft**
Crystal Castles	**U.S. Gold**
Computer Hits III	**Beau Jolly**
W.A.R.	**Martech**
Leaderboard Tournament	**U.S. Gold**

BULLETIN
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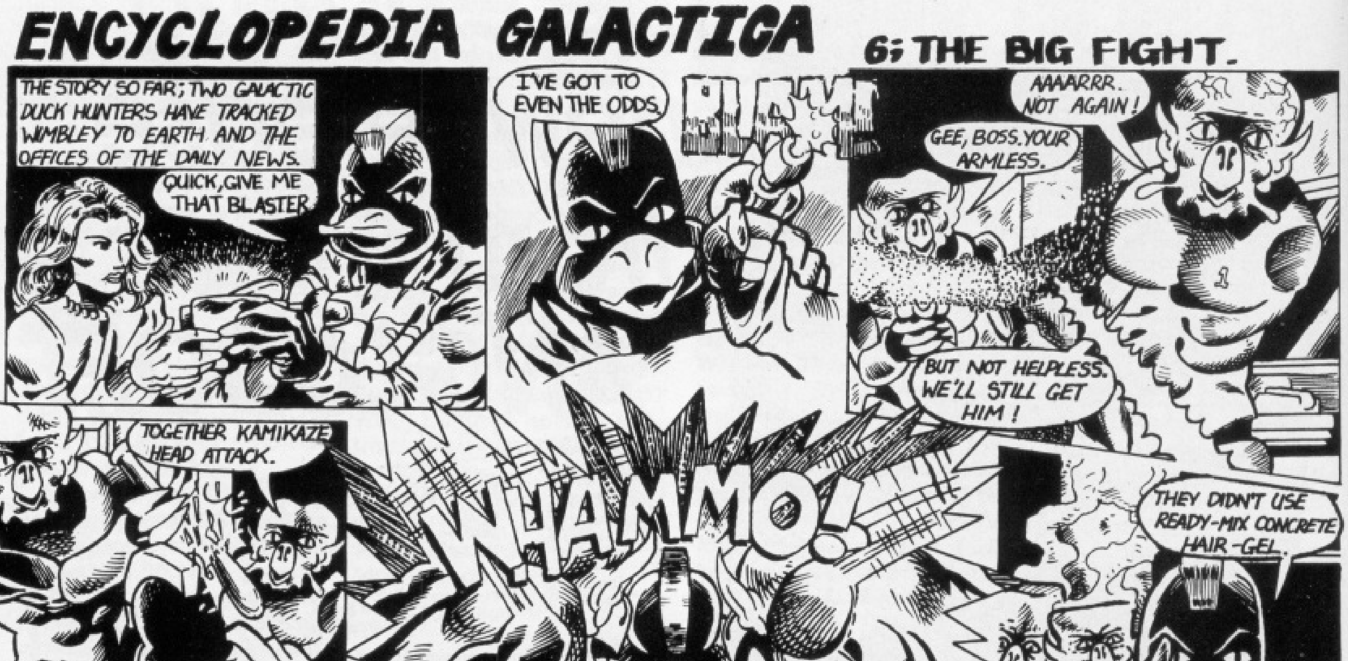
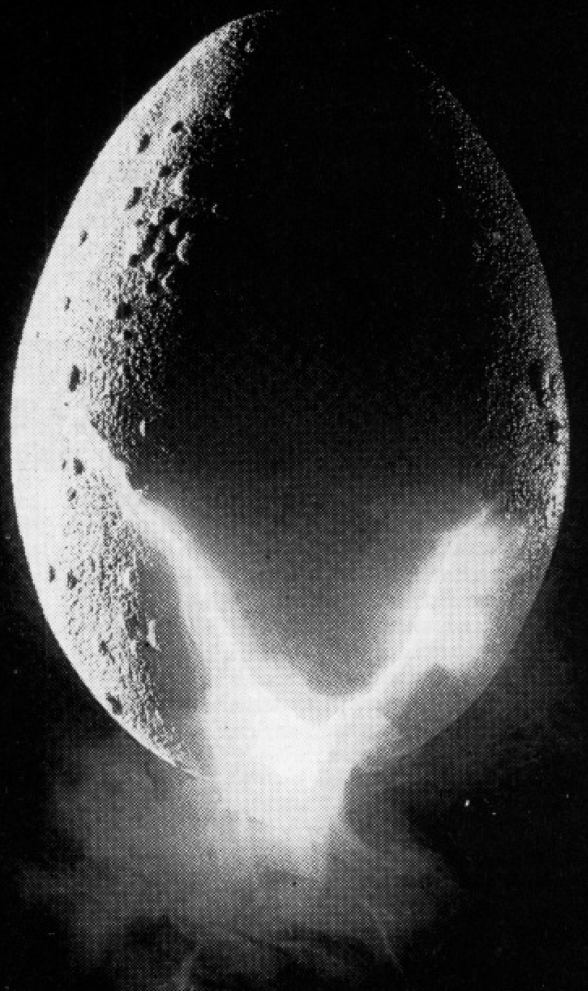

ENCYCLOPEDIA GALACTICA
6; THE BIG FIGHT.
THE STORY SO FAR; TWO GALACTIC DUCK HUNTERS HAVE TRACKED WIMBLEY TO EARTH AND THE OFFICES OF THE DAILY NEWS.
QUICK, GIVE ME THAT BLASTER
I'VE GOT TO EVEN THE ODDS.
BLAM!
AAAARRR. NOT AGAIN!
GEE, BOSS. YOUR ARMLESS.
BUT NOT HELPLESS. WE'LL STILL GET HIM!
TOGETHER KAMIKAZE HEAD ATTACK.
WHAMMO!
THEY DIDN'T USE READY-MIX CONCRETE HAIR-GEL.
NEXT- RAIDERS OF THE LOST TOWN.

The Original

ALIEN



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THE PAWN

Where is Gringo Baconburger hiding? What is the meaning of life? These questions and many more are put to Andy Moss in his playing of the now legendary 'The Pawn'.

Adventure. What is it that drives us to become heroes? Here we are, intelligent responsible people who at the switch of a power button on our computers suddenly become fearless adventurers. Picking up our trusty swords we go orc bashing and treaure seeking, with the odd princess rescue thrown in for good measure. No clue too small, no job too great. If there is a world that needs saving you've called the right number. Whether it's middle Earth, the Dark Ages or Modern times; fighter, detective or computer expert, we come in many guises but essentially we all want to be heroes, in all the scenarios, always.

In THE PAWN a Tolkenian world has been selected as the setting where pixies, gnomes, dwarves, kings and queens live out their lives in company with the obligatory evil magicians and horrid dragons.

Many words have been written and much has been debated about the AMIGA and Atari S T versions of The Pawn, Magnetic Scrolls innovative interactive adventure program. There we were, seasoned reviewers one and all, oohing and aahhing over the state of the art pull down graphics, the advanced parser the likes of which we have never seen before, and a word processor style text editor, to name but three special features. Couple this with a real meaty storyline and you have what can only be described as an adventuring classic in the true sense of the word.

After many months of waiting, Rainbird have released the 64 version and I am pleased to report that unlike many conversions these days the Commodore 64 version of The Pawn is every bit as good as its eminent predecessor.

Twin Disks

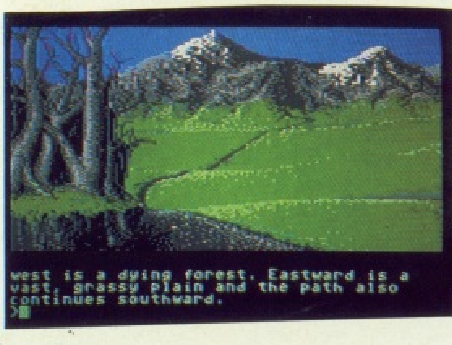
The first thing you notice is the packaging. The program comes as a twin disk package along with a colour poster, instruction manual and a 64 page novel to set the scene. This is where one of the new features of The Pawn comes in, as built in the program is a HINT command which recognises a cypher of numbers and letters. If you turn to the back of the novel, there are a series of questions relating to most of the puzzles in the game and the solutions are listed in the cypher code. When you're stuck, just type HINT and enter the correct code and with a bit of luck a gentle hint will get you on your way. It is useful to read the novel as it gives you a nice background to all the characters in the story along with a few well disguised clues.

What about the story? — Well, THE PAWN is set in the magical world of Kerovnia during a period of tremendous social upheaval. The King is losing support and loyalty with the people and the economy is slowly disintegrating due to lack of tourism. This has all come about since the assasination of Queen Jendah for which the dwarves were blamed and banished from the land. As the Dwarves were fine distillers of whiskey, their passing has been sorely missed from both an employment and economical viewpoint, not to mention a few dry and thirsty throats! However, the Gnomes eager to spot a good deal when they see one are producers of ale and spring water and are living in the lap of luxury on their profits and the last thing they want is to see the Dwarves return as there are rumours around that the Dwarves were innocent of the murder of Queen Jendah.

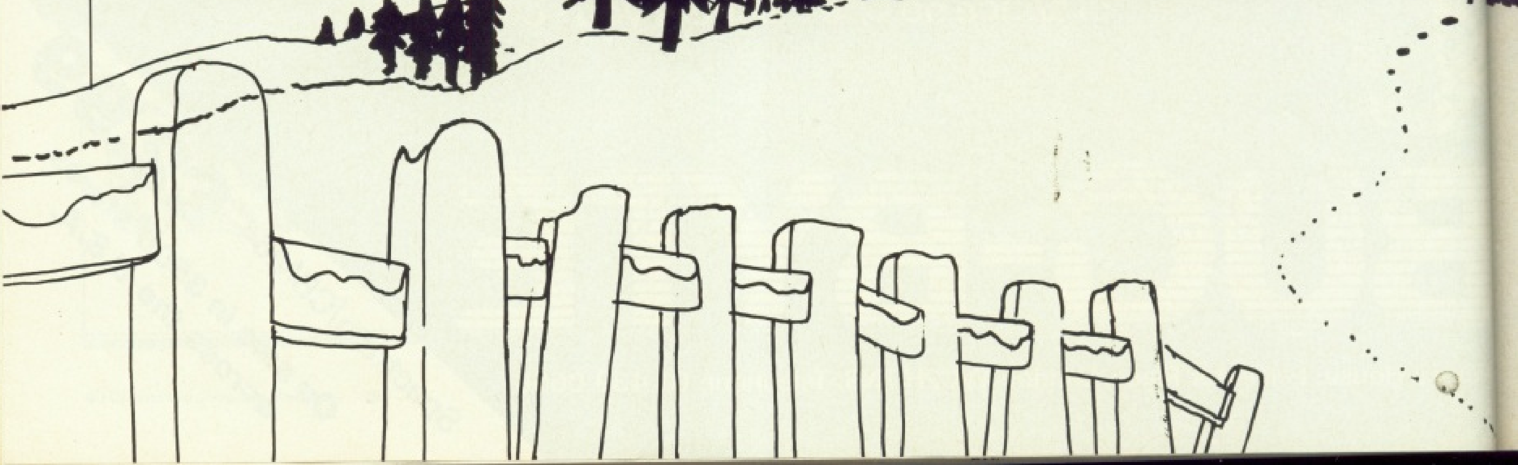
It is about here that you as the player unwittingly arrive in the scene wearing a shirt, jeans and a metal wristband that doesn't seem to want to come off! From the novel, you know there is an evil magician called Kronos (god of time, get it? could he have put the wristband there?), a princess that needs rescuing, a king who needs a lot of help, a dwarf who wants to be elected king and a whole host of other sub plots, the most important of which is how to get out of this mess and go home (is that a clue?).

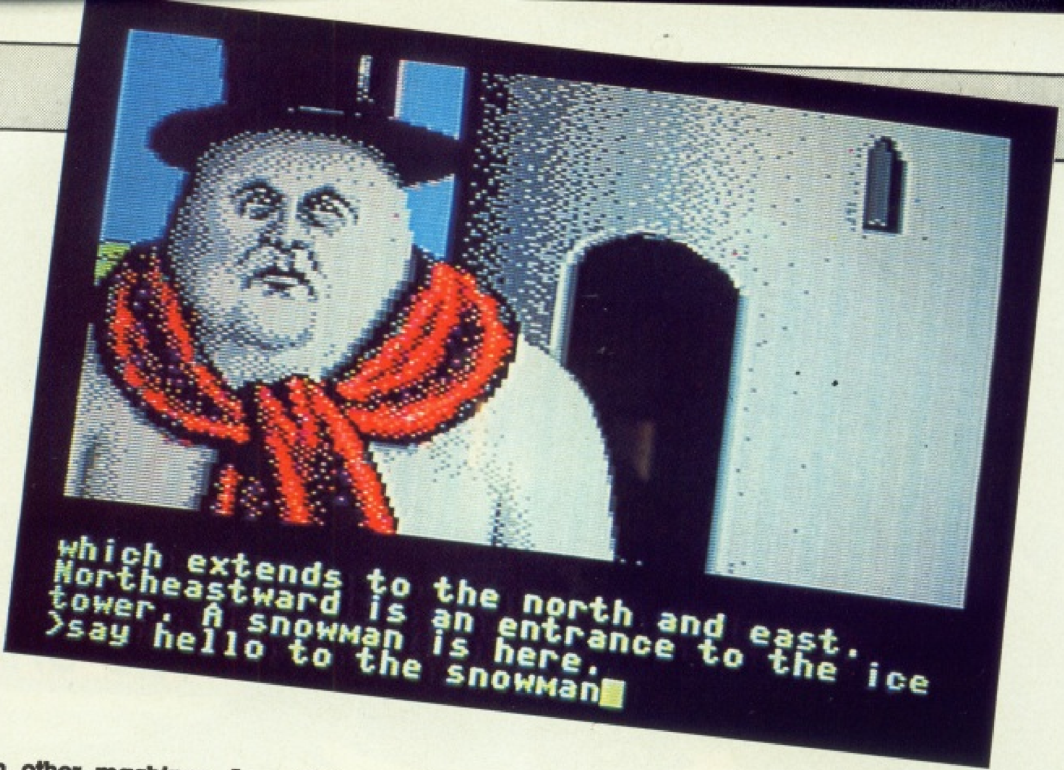
Start up

The start up location is a gravel path which fringes a dead forest and a grass wilderness and the first of 30 pictures scrolls down showing just this scene. I am a text purist myself and pictures do nothing for me unless there are hidden clues in them, so when I play The Pawn I use the 'cameo' option which reduces the pictures to a small square at the top of the screen, letting me see most of the text in full. However, being a considerate reviewer and having seen



```
west is a dying forest. Eastward is a
vast, grassy plain and the path also
continues southward.
>
```





```
which extends to the north and east.
Northeastward is an entrance to the ice
tower. A snowman is here.
>say hello to the snowman
```

its graphics on other machines, I viewed all the pictures for a comparison in full screen mode and although lacking some of the trimmings of the ST version, (the AMIGA version is truly amazing!) the 64 graphics are still exceptional.

The rest of the screen layout is exactly like Infocom, with a 'room' name at the top and a score/moves counter alongside.

This brings us nicely on to what really is the most innovative part of PAWN — its parser. I must admit to being a dedicated Infocom fan and the freedom to express yourself in at least a decent form of English along with wonderful humorous descriptions is their trademark. Magnetic Scrolls have perfected a parser that frankly makes Infocom look dated and old hat (is this really me saying this?) as it has the ability to recognise practically anything within the confines of the storyline. What, I ask myself, would the great Infocom parser make of this line "Get the plant from the plant pot and pot plant in the plant pot with trowel". Sitting back with my "So much for that hype, I've heard it all before" expression, I awaited the outcome and was astonished to read "You take the plant, the plant is a lot happier now". So much for my doubting!

Other useful commands are "Except" and "it". For instance you could say "Get all except the cases but not the violin case" and "Remove the shrew's tail and use it to tie the rake and the hoe together". It really is such a pleasure to dispense with just verb noun typing. American authors take note, especially as software from the USA so often exciting in idea is frequently let down by bad parser implementation.

Construction

PAWN is different again in its construction. Rather than let you get stuck in one location and not let you continue until the puzzle is solved in a kind of linear fashion, PAWN lets you roam quite freely around the land visiting places that obviously will have to be revisited with the correct equipment later, but letting you take a look at what is to come. The adventure has taken three years to develop and the trouble and time and effort plainly show. Seemingly, every eventuality has been included, although one minor niggle — I had a few problems conversing with the characters (a must in order to get certain information about certain quests etc.), all I seemed to get was "certainly not!" or "he ignores you". This was using the *Say* to command. I fared much better when I used "Ask about" and would recommend this approach when you need it.

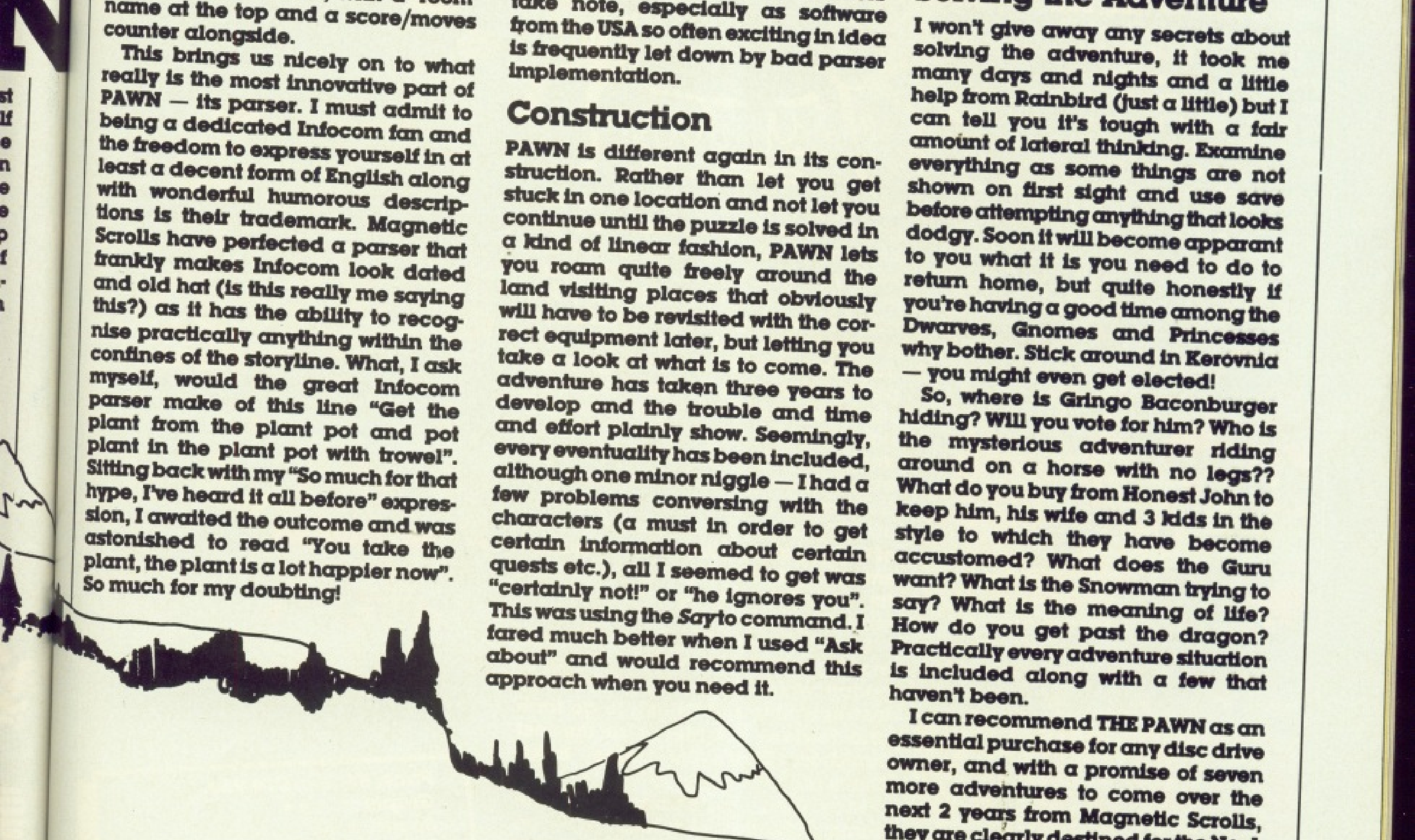
Pawn has bags of humour. For me, one of the most amusing scenes was knocking on the Devils Gate and listening to the Porter moaning. A tip here is to keep knocking if you can put up with his verbal abuse!

Solving the Adventure

I won't give away any secrets about solving the adventure, it took me many days and nights and a little help from Rainbird (just a little) but I can tell you it's tough with a fair amount of lateral thinking. Examine everything as some things are not shown on first sight and use save before attempting anything that looks dodgy. Soon it will become apparant to you what it is you need to do to return home, but quite honestly if you're having a good time among the Dwarves, Gnomes and Princesses why bother. Stick around in Kerovnia — you might even get elected!

So, where is Gringo Baconburger hiding? Will you vote for him? Who is the mysterious adventurer riding around on a horse with no legs?? What do you buy from Honest John to keep him, his wife and 3 kids in the style to which they have become accustomed? What does the Guru want? What is the Snowman trying to say? What is the meaning of life? How do you get past the dragon? Practically every adventure situation is included along with a few that haven't been.

I can recommend THE PAWN as an essential purchase for any disc drive owner, and with a promise of seven more adventures to come over the next 2 years from Magnetic Scrolls, they are clearly destined for the No. 1 spot along with Level 9 and Infocom.
A.M.



CCI Rating

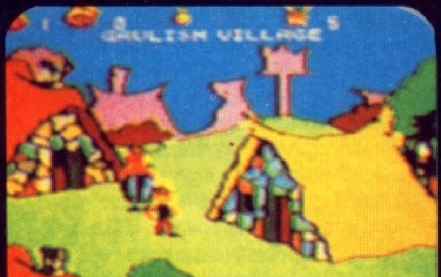
DODGY

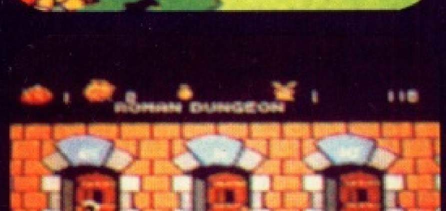
ASTERIX
AND THE MAGIC CAULDRON
JULIAN ROSEN SEZ
'NICE IDEA - SHAME ABOUT THE GAME!'

Asterix

This is a "would have been very good IF" game, unfortunately. Unfortunately because it had a lot of potential, but is badly executed, badly written, and basically, not too hot.

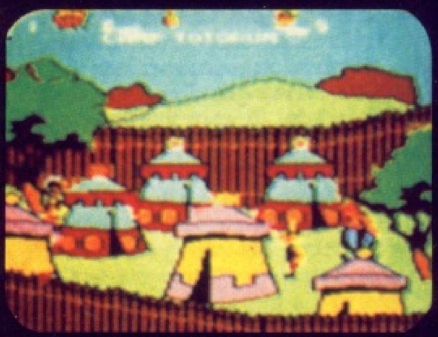
If you read the Asterix books (what? you didn't? Heresy!) then you'll know all about the little village on the edge of Gaul, which has been conquered by the Romans. The village survived the Roman onslaught because of the efforts of the druid, Getafix who created a magic shield around the village. Getafix concocted a magic potion from various herbs scattered about the woods that gives these village Gauls superhuman strength, allowing them to survive the Roman armies. Asterix and Obelix are two life-long friends. Asterix is a trustworthy, brave, "you can count on me" man. Obelix is a menhir delivery, fat, wild-boar eating lump, who will follow Asterix to the end of the Earth. One day, when Getafix is handing out his potion from his magic cauldron, Obelix as usual tries to get some. As a baby, Obelix fell in the cauldron, and gained the superhuman strength without having to drink the potion, so Getafix, as usual says no. Unfortunately this time temper gets the better of Obelix, and he kicks the cauldron, smashing it into eight pieces which fly out of the village into the surrounding land.

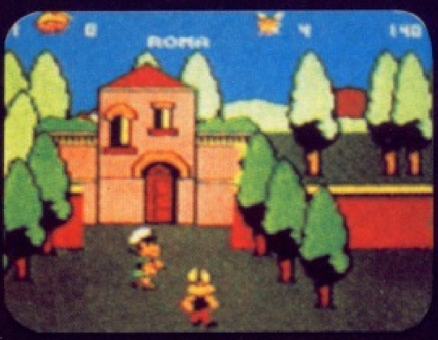




From the remaining piece, Getafix manages to brew a small amount of potion, which he gives to Asterix, and instructs him and Obelix to go forth and retrieve the pieces of the lost cauldron. That's the game, folks. That's all!

Nice idea . . . shame about the game. Chunky graphics, vereeee slow screen, re-draw, and badly expanded sprites make this rather a dull, frustrating game to play. Back to the stone drawing tablet.





Price: £9.95c/£14.95d
Graphics: ★★★
Sound: ★★★
Playability: ★★★
CCI Rating: DODGY

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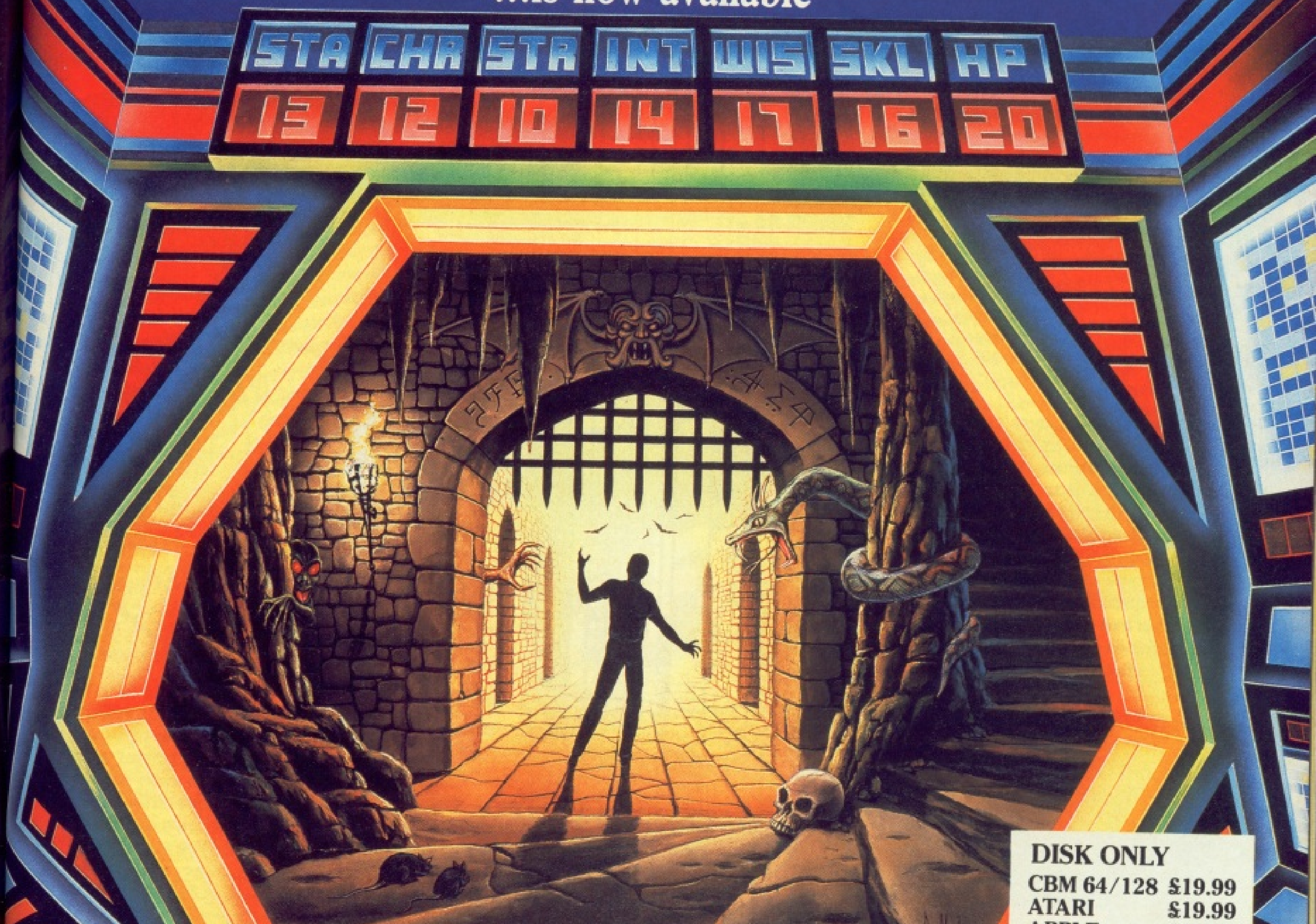
STA CHR STR INT WIS SKL HP
13 12 10 14 17 16 20

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If you yet haven't experienced 'THE CITY', don't worry it's still available, and now also on Atari ST, IBM & Amiga.

THE CITY A role playing fantasy game in which you are abducted by a spacecraft and find yourself in a room with only one exit. Through this doorway you see The City. The panel displays changing numbers representing levels of character. At the moment you pass through the portal the numbers freeze. In The City you will encounter all sorts of strange and wonderful beings. The sun rises and sets, rain falls, and secret doors lead you into unexpected perils.

STA CHR STR INT WIS SKL HP
15 19 12 18 14 12 19
Part One
THE CITY

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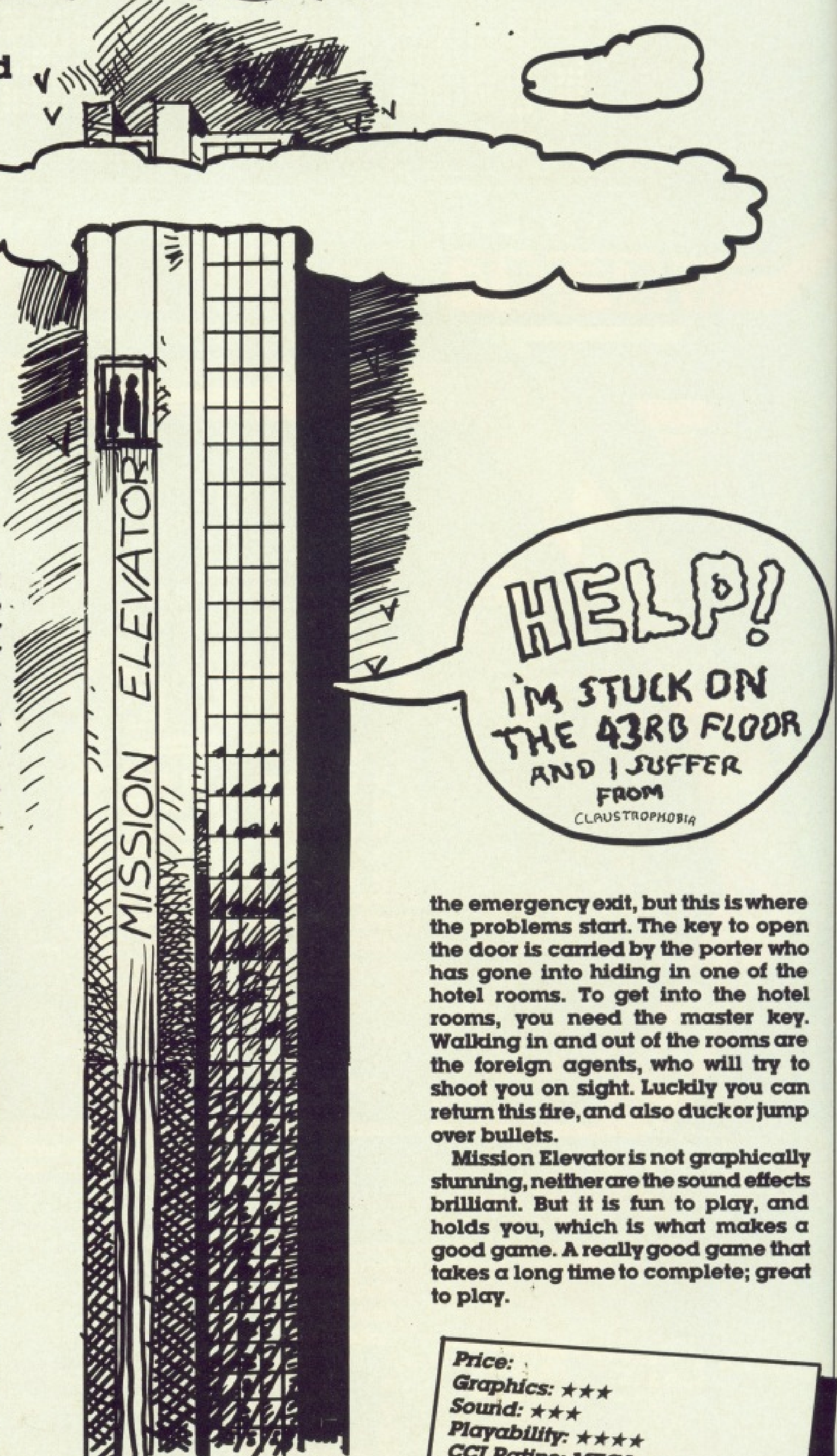
MEGA REVIEW

CCI Rating C64

MEGA

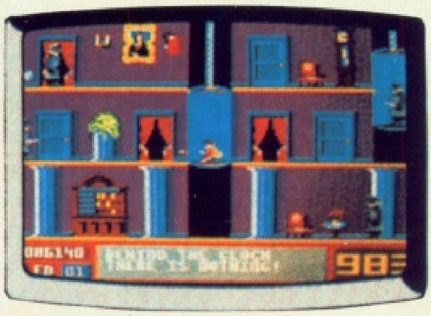
MISSION ELEVATOR

from
Euro-Gold


MISSION ELEVATOR
HELP! I'M STUCK ON THE 43RD FLOOR AND I SUFFER FROM CLAUSTROPHOBIA

Mission Elevator is a conversion of quite an old coin-op arcade machine of the same name, which in its day was quite popular. The plot is pretty corny, but results in a nice game.

A hotel which the FBI has been using as cover for one of their central intelligence units has been attacked by the agents of a hostile Secret Service, who are demanding the release of a number of spies currently imprisoned. If the demands are not met, a bomb, which a specialist has located on the 62nd floor, will be detonated blowing the hotel to kingdom come! This specialist also discovered the stop-code to halt the countdown, but unfortunately he was discovered and captured. He was dumped in the basement, but on his way was able to leave 16 clues scattered about the hotel which when used will give you the ability to stop the bomb.



The hotel is split up into units of 8 floors which you can move between by using the lifts. To get to the next eight floors you need to go through the emergency exit, but this is where the problems start. The key to open the door is carried by the porter who has gone into hiding in one of the hotel rooms. To get into the hotel rooms, you need the master key. Walking in and out of the rooms are the foreign agents, who will try to shoot you on sight. Luckily you can return this fire, and also duck or jump over bullets.

Mission Elevator is not graphically stunning, neither are the sound effects brilliant. But it is fun to play, and holds you, which is what makes a good game. A really good game that takes a long time to complete; great to play.

Price:
Graphics: ★★★
Sound: ★★★
Playability: ★★★★
CCI Rating: MEGA

MEGA REVIEW

CCI Rating

CRISP

GO FOR THE GOLD!

GO FOR THE GOLD — AMERICANA

Well what have we here you all cry? Well it's, yes you've guessed it another Decathlon/Olympic/joystick waggling game. (That the 50th or 60th this year!) This one, however, is better than most but it not in the same league as Decathlon or Summer Games 1 or 2 It is in fact the old HES games but none the worse for that. And at £2.99, it's really good value.

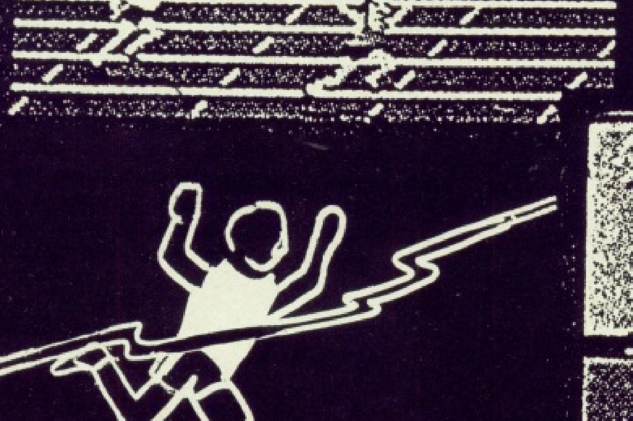
Go for the Gold has six events in all. These include Weightlifting, Diving, 100m Sprint, Long Jump, Archery and the good old Hurdles.

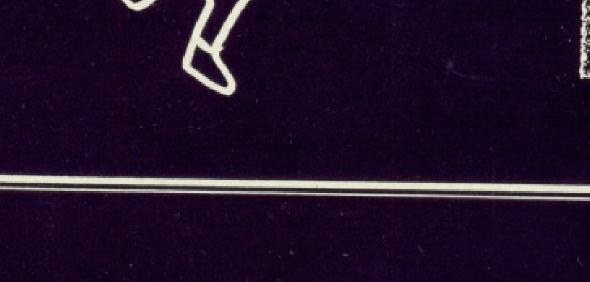
All of the above events are pretty easy to get into but like everything (Everything Ed?) else in life, with practice it will only get better.

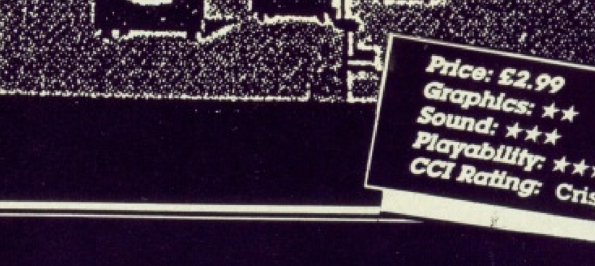
The hardest event is probably diving and the easiest being the sprint or long jump.

The graphics in Go for the Gold are about average and there is a nice Bolero Sounding tune which is played all the way through the competition.

There are som agreeable touches that add to the game and the instructions are clear.. The price is good as well and it will probably appeal to most of you, but I'm sick to the teeth of decathlon type games and so is my joystick! (Well stop playing with your joystick Ed!)



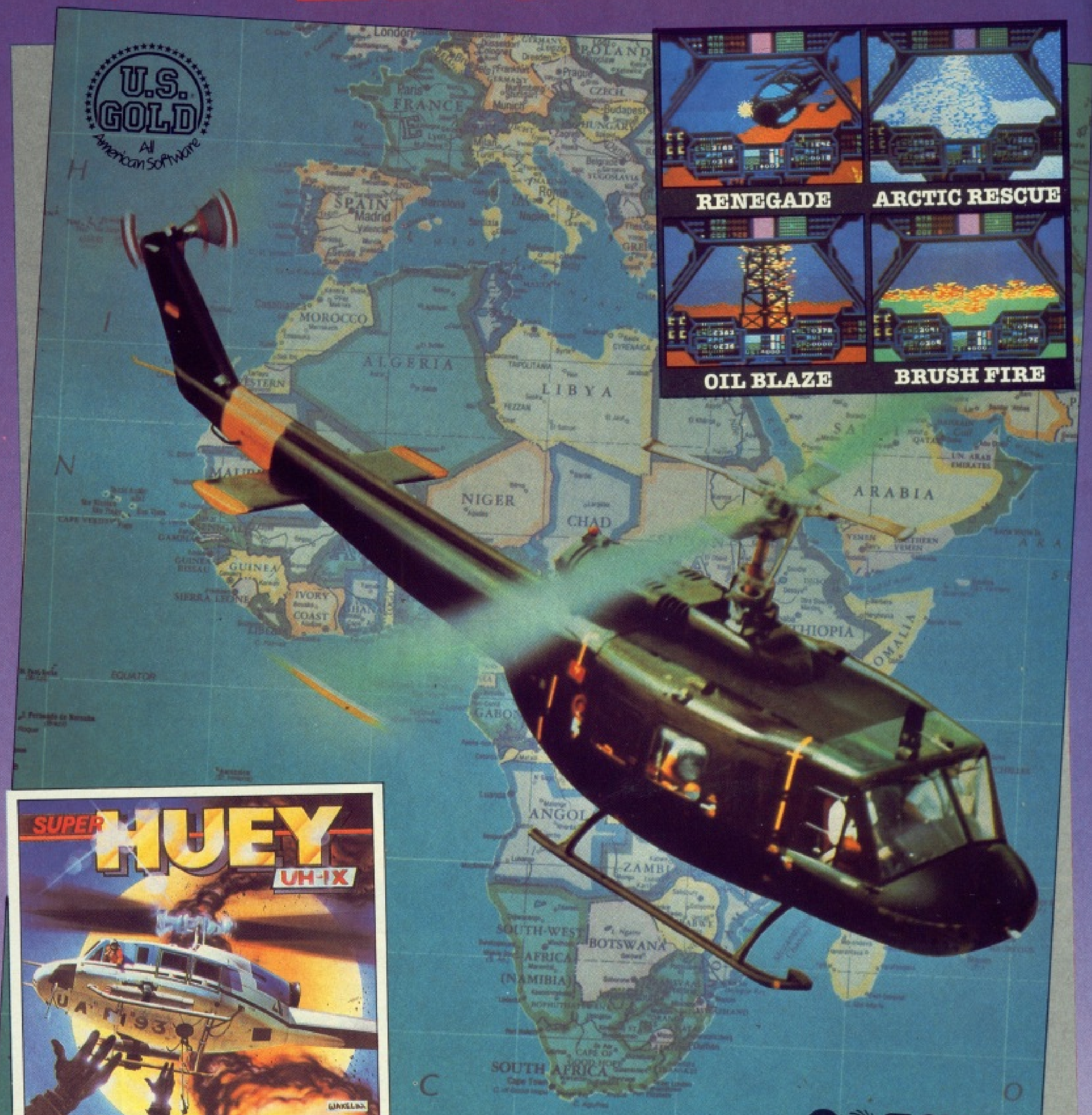



PART 2 U.S.GOLD
HI: -
30M. 60M. 70M. 90M. POINTS

Price: £2.99
Graphics: ★★
Sound: ★★★
Playability: ★★★
CCI Rating: Crisp

THE HELICOPTER FLIGHT SIMULATOR

Super HUEY II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BRUSH FIRE
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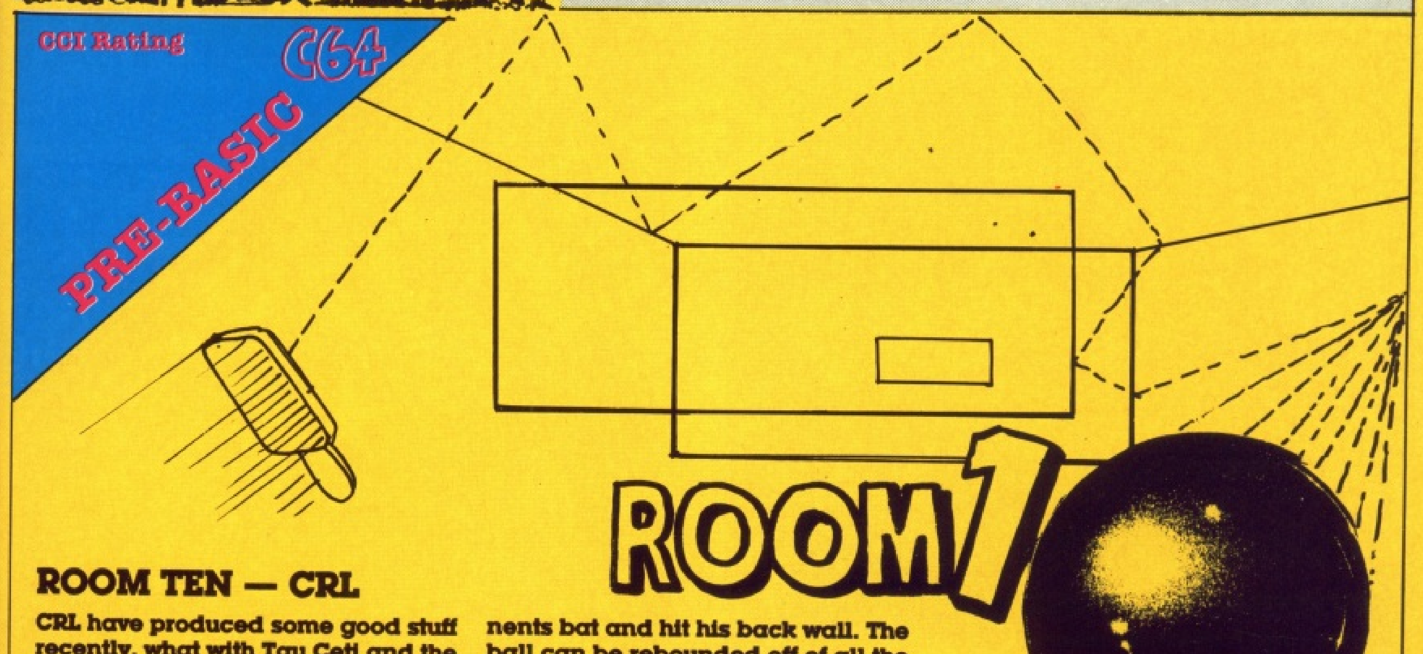


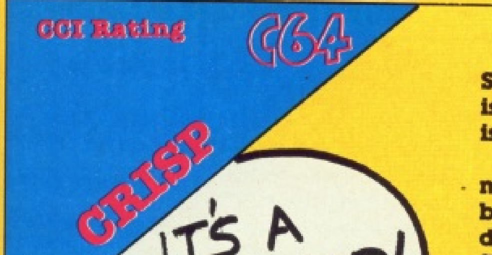
ROOM TEN — CRL

CRL have produced some good stuff recently, what with Tau Ceti and the Bored of the Rings adventures, but Room 10 really is the pits!

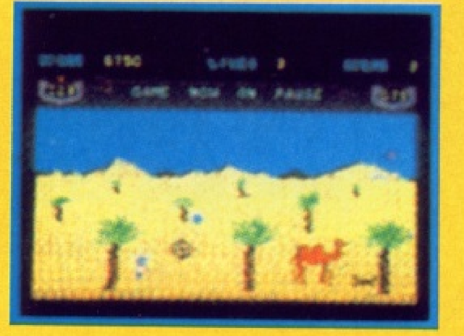
This bat n' ball game can either be played with 2 players or 1 player versus the computer. Room 10 is a bit slow, so I didn't play it for very long. Basically you control a square bat with which you must hit the ball. You must try and hit behind your opponents bat and hit his back wall. The ball can be rebounded off of all the walls, floor and of course the ceiling. The first one to reach 35pts is declared the winner.

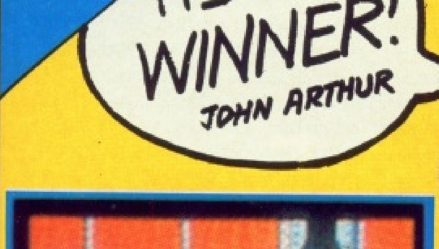
The graphics are pretty pathetic and the price is ridiculous considering what is on offer. The instructions seem to be in every language under the Sun except for plain down-to-earth English Sorry, but this is a no, no!

Price: £9.95
Graphics: ★
Sound: ★
Playability: ★
CCI Rating: Pre-Basic



Legend of Sinbad





Have you ever read the Arabian Nights? Those exotic tales told by Scheherezade to save her skin for 1001 nights to her bloodthirsty Sultan? You haven't? You don't need to Sinbad, the game is here from (very) Superior Software. Sinbad the sailor is your name and retrieving treasure is your entertaining game.

After collecting the treasure you must do battle with dragons and bodyguards — scimitar-flashing no doubt, (we don't need any scimitar flashers around here. Close your raincoat at once! Ed)

absolutely action packed game is set across five screens of haywire. The first of these five is in a dungeon. In order to escape from the dungeon, you must collect two keys which open two separate padlocks. To obtain eight pieces of treasure for each key (expensive!). After this task is complete, then it's on to the next four screens for further fascinating problems.

The Legend of Sinbad asks you for a password, but if you don't know it then just press fire and you'll be floated, care of a magic carpet, back onto screen 1.

The graphics are pretty simple, as is the sound, but there is something about this game that I like. It has a sort of oriental magic that is very hard to resist. Maybe I have Turkish blood in my veins, but I think it's a winner.

Price: £9.95
Graphics: ★★
Sound: ★★
Playability: ★★★★
CCI Rating: CRISP

CCI Rating C64

NAFF

Spiky
HAROLD

SPIKY HAROLD — FIREBIRD

It's rapidly approaching winter and poor little Harold has nothing to eat (Aaah!) So you, being the kind hearted Commodore owner, have to help him out.

There are 57 items of food for Harold to get. A frost has been forecast by nutty Ian McGaskill and Co., so you must collect all the objects in 24 hours. I think the minutes ar real minutes so you gotta long time Pal.

You've also got plenty of lives, twenty to be exact Spiky Harold is very much a version of JSW and it becomes boring.

Graphics are large and basic and are coloured pretty simply as well. The sound is hardly ear shattering. You can starve for all I care, Spiky H!

Price: £1.99
Graphics: ★★★
Sound: ★★
Playability: ★★
CCI Rating: NAFF

CCI Rating C64

IFFY

STRIKE
FORCE
HARRIER

STRIKE FORCE HARRIER FROM MIRRORSOFT

The plot is simple. Recently, events in the Middle East have taken a turn for the worse. As a result, the conflict has heightened into a confrontation between East and West. The Warsaw Pact countries are massing their troops along the East German border, ready to invade. Luckily, with some amazing foresight, the two leaders agree to sign an agreement not to use nuclear weapons, but "just" conventional forces. The agreement signed, the two leaders prepare for war.

A few weeks later and the war is not going well for the allies. The Warsaw Pact countries have occupied the whole of Germany, and the Eastern HQ lies 500 miles inside enemy lines. As a pilot of VTOL Harrier, your mission is to destroy this HQ thereby causing the complete confusion of the enemy, and allowing NATO forces to launch an attack to try to push back the Eastern Bloc armies.

On your mission you will encounter enemy aircraft, should you fail to avoid radar detection by flying too high, anti-aircraft missiles, and ground-to-air missiles, amongst others.

Strike Force Harrier sports some nice graphics, but the gameplay itself is not too good, and is not even very good as a flight simulator. Whilst appreciating that it is difficult to simulate a Harrier Jump-Jet on a 64, I do think a better result might have been obtained if Mirrorsoft had tried harder.

Price: £9.95c/12.95d
Graphics: ★★★
Sound: ★★
Playability: ★★★
CCI Rating: IFFY

CCI Rating C64

MEGA

PAPER BOY

from Elite

Paperboy, from Elite, is a conversion (and a very good one!) of the arcade game, Paperboy. As a fledgling paperboy cruising the streets on your BMX Action Bike, you have to deliver papers not, as in England by sedately walking up to the front door and posting it through the letterbox, but by chucking it through the letterbox from your bike! Easy though this may sound, it is hellishly difficult because quite apart from getting your aim right, you have to avoid tyres, workmen, dogs, skateboards, and a whole host of other obstacles that hinder your path. You must only deliver papers to yellow houses, but be careful not to bust any windows, knock dustbin lids off, or smash gateway lanterns.

The next day round your delivery list will have changed depending on how successful, or, more likely unsuccessful you are, and if you're good enough you may even survive Wednesday!

At the end of each day you hit the obstacle course which you'll need to pass through if you're to get anywhere as a paperboy. This gets more difficult every time you go through it and although on the arcade version you can judge fairly accurately what course/angle you are on, on the 64 version things can become a little confusing. Nevertheless, Paperboy is an excellent conversion of one of my favourite arcade games, and has all the qualities that made it so good originally.

Price: £9.95c/£14.95d
Graphics: ★★★★
Sound: ★★★★
Playability: ★★★
CCI Rating: MEGA

MEGAREVIEW

CCI Rating

C64

AWESOME

10,000 LANDSCAPES!!

SENTINEL

Sentinel from Firebird

After a patch of some pretty chronic releases, Firebird seem to have pulled themselves together and come up at last, with the goods. Sentinel is, in a nutshell, magic.

Sentinel is written by Geoff Crammond, author of Revs, and also Aviator, a highly acclaimed flight simulator on the BBC micro, and this, his latest offering, easily lives up to the standards he set in those games.

Sentinel is original. Highly original. You are a synthoid, the first in a new generation of robots designed to end The Sentinel's rule over his 10,000 worlds. You must destroy him . . . before your world makes that number 10,001. Its origins are unknown. It creates the Sentries underlings who guard the planets under his supervision. He is also father of the Meanies, nasty little beings that force you in to hyperspace and thus lose energy once they've latched onto you.

There really are 10,000 different landscapes, and each one of them can be accessed separately by means of a security code you are given on completion of a level. The landscape is constructed of 3D colour solid images, arranged so that they form hills, valleys, and plateau. When you enter your security code, you are shown, briefly, a map representing the landscape, displaying the postions of your enemies, but not your own position.

Once you arrive on the world, you will only see what is not blocked by hills or mountains, in a straight line image. You may not be able to see all of the sentries, and the Sentinel, but you can hear from moving (turning in fact), and you must keep track of them. Let their gaze meet yours and within no time at all you'll be frizzled amidst burned-out circuits . . .

On the Landscape are trees, and boulders. These can be absorbed by you to gain energy. Trees are the 'basic' form of energy. Two trees equals one boulder. To explain this, when you want to move, you teleport. Should you wish to rise up in the landscape, you can either teleport to a higher plateau, or build up a column of boulders and teleport yourself to its summit. This can only be done if you have enough energy to create a robot shell. You need a number of boulders to make a shell. Once you have teleported yourself to this new shell, you can re-absorb your old shell, and thus you do not actually lose any energy.

The Sentinel is usually on a high position on the landscape, so to reach him you will have to build up a column of boulders. You may have to do this several times to be able to reach the height you need so that you can absorb The Sentinel, and move on to a higher level.

This may sound easy, so what's the snag? Well, for a start you have to have lots of energy to be able to build enough boulders and create enough shells to move about. Then there are the sentries, who's gaze will wither you. The Sentinel itself also has an energy-draining gaze, but much more powerful than the sentries. Finally, there are the Meanies. If you are being half-scanned (not totally in the view of the enemy), then the sentry will create a nearby tree, if there is one, into a Meanie. Meanies cannot scan you, but once they set eyes on you, you are forced to teleport, and lost a substantial amount of energy.

Sentinel is all to do with Strategy. It is not a fast shoot 'em up. It is an action game. Neither is it a simulation, or an adventure. It's in a class of its own. Get this game, at all costs. Any cost, in fact!

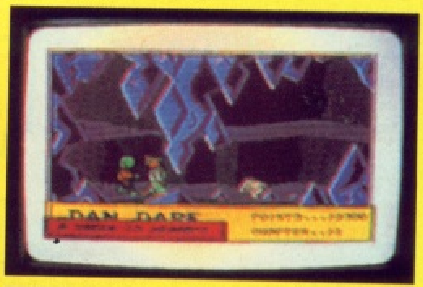
Price: £9.95c/£12.95d
Graphics: ★★★★
Sound: Not really applicable
Playability: ★★★★★
CCI Rating: Incredibly AWESOME!

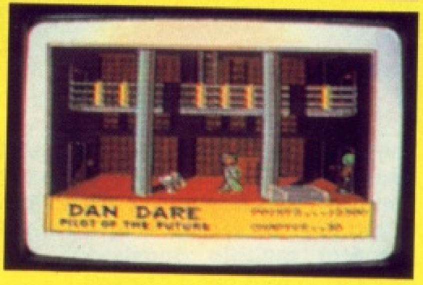
CCI Rating

IFFY

C64

MEKON SAYS – DO YOU DARE DAN?





Dan Dare — Virgin Games

You're sitting in your plush living room, supping a cup of cocoa and before slipping off to bed you switch on the T.V. "This Is Your Life" is on, with superhero Dan Dare as star guest. Dan meets lots of old pals and he's having a great time until he meets an old enemy in the form of the Mekon. The Mekon interrupts T.V. programmes all over the world to deliver his message, loud and clear. He tells you that there is an astroid under his control, heading towards Earth. Unless the 'powers that be' give in to his demands, he will destroy Earth. If they do give in, he will rule the universe. Dan, of course, is not having this so, along with three of his mates, he sets off to foil the Mekon's plans.

Arriving on the asteroid they split up into groups, but the Mekon's followers (Treens) capture Dan's friend Digby and Prof Peabody. Dan now has to save his two friends *and* beat the nasty Mekon.

Dan must explore the inner depths of the astroid and eventually destroy the evil Mekon. He is equipped with 24 grenades, at least ten of which will be needed to destroy the Mekon. The asteroid is made up of a maze of different levels and somewhere within the maze there is a cell containing Dan's pals. When you've found his pals you will gain entry to the laser. This laser will destroy the course-controlling computers and will finally open the door to the Mekon. When Dan's beaten him, he must escape before the asteroid self destructs.

Dan Dare is set on a nice theme, but perhaps a little complex. The fighting sequence is a bit difficult, but the more you use it, the easier it gets. Dan moves around the cave complex pretty smoothly, but when he goes up ladders, he tends to melt into the scenery. There is a nice tune with the credits screen but very little during the game.

Price: £9.95
Graphics: ★★★
Sound: ★
Playability: ★★
CCI Rating: IFFY

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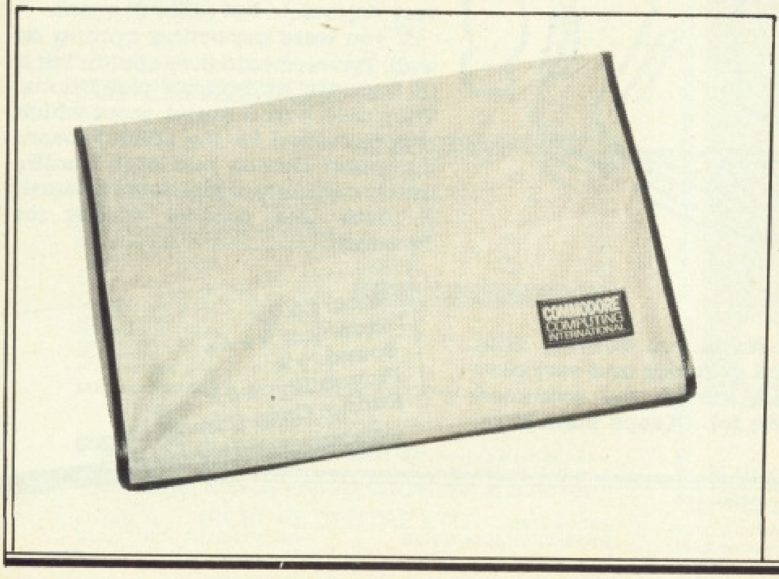

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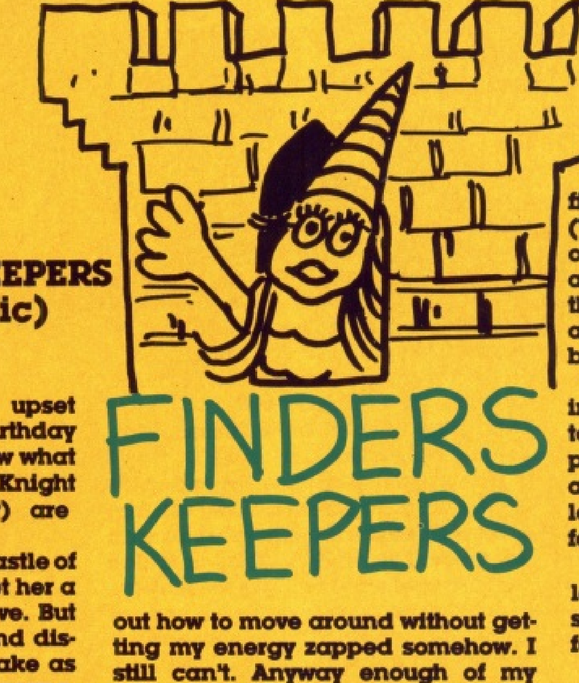
CCI Rating C16

CRISP



FINDERS KEEPERS (Mastertronic)

The King of Isbimsima is upset because it is his daughter's birthday tomorrow and he doesn't know what to get her. So you — Magic Knight (general gullible dogsbody) are ordered to find her a present.

You are transported to the castle of Spriteland where you must get her a suitable gift, as well as survive. But being dishonest, unworthy and dishonourable you decide to make as much money as possible and escape. This is where your troubles start.

The obstacles and monsters in this game were a great problem to me at first — then I realized although it said joystick port 1 it meant port 2. Then the monsters and obstacles were still a big problem. I just couldn't figure out how to move around without getting my energy zapped somehow. I still can't. Anyway enough of my troubles and on with the review.

It's standard arcade adventure fare with very hard problems. For instance how do you get past the cat? Now this might not be a problem to 64 owners but I'm sure that it will keep us C16 people troubled for a while. As you go from screen to screen you find little white lamps on the floor (Yuk!) if you examine these you find out its a bar of lead or a pile of mud, and if you get certain objects together they react to make either more valuable or cheaper objects than you had before.

There are lots of locations, including 2 mazes which if you stay inside too long make you weak. Good graphics and frustrating but quite addictive game play. You could do a lot worse for a lot more, Space Pilot for example.

If it's an arcade adventure your looking for this will be right up your street, though I think Monty beats it for entertainment value.

Price: £1.99
Graphics: ★★★
Sound: ★
Playability: ★★
Rating: Crisp

CCI Rating C16

CRISP

EUROPEAN GAMES

Tynesoft have been with the C16 from the start and have, I think, now finally cracked programming it with their best release.

With a title like 'European Games' (first called Commonwealth Games) you'll realize this is a Hypersports rip-off, and not one of the first on the C16 either, but it has excellent ideas, original events and great graphics to boot.

The first event is hammer throwing which features large, detailed graphics. You must spin around 3 times as fast as you can and let it fly.

Event 2 is swimming — this event is very much like the Hypersports version — you must swim against the computer and the clock. You swim by pushing the joystick left and right but also have a supply of air, which if you replenish slows you down a little. Again good graphics and very playable event, though the swimmers look a little fat. (Keeps them buoyant! Ed)

Event three is the long jump. A gun fires, and you start your run down the track. As you take off, you jump 2 centimetres into the air and land 15m away. The jumper is very lethargic and stomps slowly down the track. Uninteresting graphics and boring gameplay let this event down.

Event four is rowing — you must push the joystick in its four directions to get the oars going. You keep them in sequence and fast till the end of the race.

Event five is another event with large graphics. The lifter (who has a very grim face) goes through about five stages of lifting his weights. A very enjoyable but difficult event.

If you were expecting cycling as well, Tynesoft said they couldn't fit it in because of memory restrictions. They also had a music score which was excluded for the same reason. European Games had high quality and is certainly of high level interest. It looks like another winner for Tynesoft!

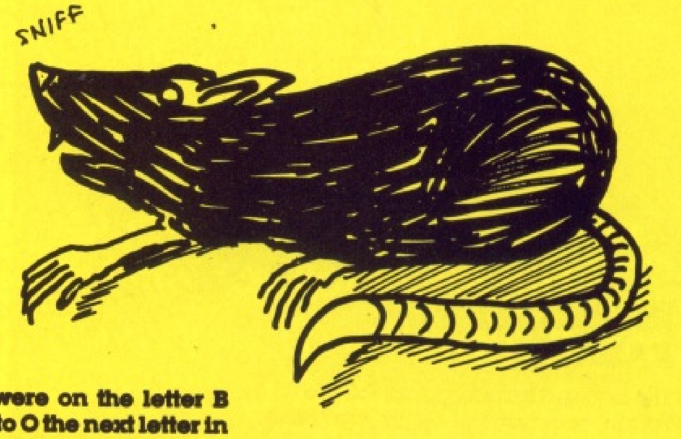
Price: £6.95
Graphics: ★★★★
Sound: ★★
Playability: ★★★
Rating: Crisp (almost Mega)

MEGAREVIEW

CCI Rating C16

DODGY

BONGO



Bongo is standard platform game fare with the added attraction of a screen designer.

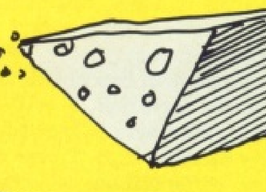
It's by that brilliant programmer Udo Gertz who made the masterpieces Winter Events and Tom Thumb, so I expected this game to be good. It's not, so don't get yourself excited.

Your aim is to collect five diamonds scattered around the screen, each one appears after you've caught the one before it. (What? What did you say just then?) To help you, are ladders, chutes, trampolines, lifts and the letters of your name.

The ladders and lifts do the usual thing, the chutes are like slides (I suppose they are really) and the letters are a really great find. Those enable you to transport yourself from one part of the screen to the other. For instance if you were on the letter B you would move to O the next letter in the name of your character Bongo.

Yes ... about your character. I have never seen such a blocky, ugly person before, ... until I saw the baddies after your!. Such big noses and beady eyes — I couldn't believe it. Then there's the sound of Bridgette Gertz — if you like a feeble tinkly rendition of Axel F, you'll like this but I doubt anyone has such bad taste.

The screen designer doesn't make this game any better. Better luck next time Anco.



Price: £6.95
Graphics: ★★
Sound: ★★
Playability: ★★
Rating: Dodgy

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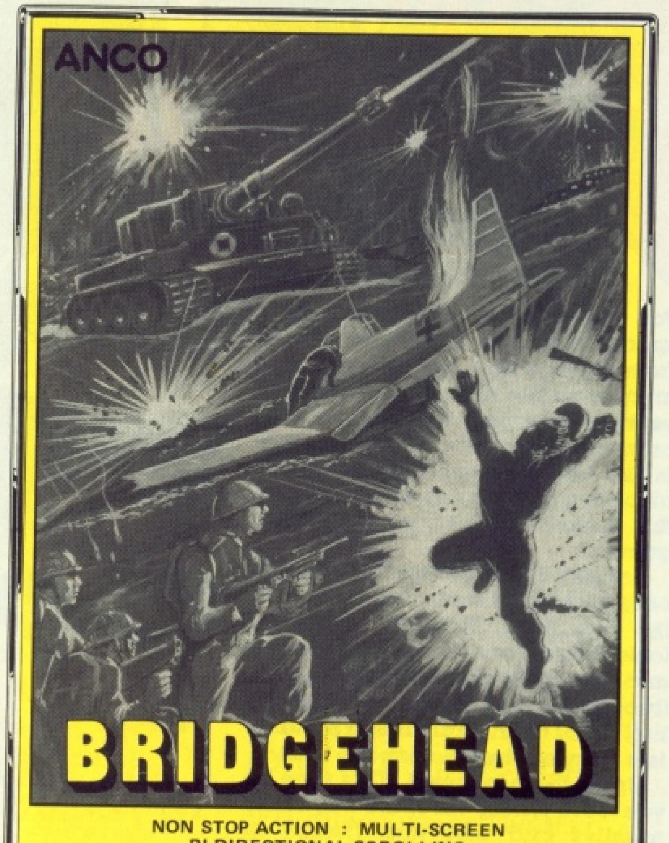

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CCI Rating C16

IFFY

ENDURANCE GAMES
ENDURANCE GAMES
INTERNATIONAL KARATE

INTERNATIONAL KARATE

The second karate game for the C16 within two months! What are things coming to? I suppose, before we realize what's happening, games companies will start converting games for us!

If you find the name International Karate familiar, it will be because this game was released for the '64 a few months ago. There are though a few differences; whereas that one was made by System 3, this one is by Endurance Games. That one had great music — this one doesn't even have sound, (well not much anyway).

Accounting for the difference in memory and sound capabilities you couldn't expect the C16 version to be anything like the 64 one, but you don't think like that when you're playing the game.

You have sixteen moves — none of them looks too impressive. Your man moves with the agility of a wooly mammoth and does a kind of roly-poly somersault that would be more suited to something like hammer throwing, so ungainly it is.

The things however that really impressed me about this game were the backdrops — they are just superb. Each loads separately and thee are four of them; Sydney, New York, Bangkok and Rio. This makes the game considerably more interesting to play.

There's a two player mode, but when I used this option the program seemed to crash.

Nice try Endurance its got some good points. You almost made this a good fighting game. Better luck next time.

Price: £6.95
Graphics: ★★★★ (Backdrops anyway)
Sound: ★
Playability: ★★
Rating: IFFY

CCI Rating C16

NAFF

space pilot
C16/PLUS 4 ANCO

SPACE PILOT

You are the legendary pilot of a space craft. You are under attack from alien ships. You have a very manouverable ship. They have heat seeking missiles. We have a very original setting (ha!) for a game that is like Asteroids, only a lot worse. We also have a quick nap while playing this completely and utterly boring game.

As I said, this game is like Asteroids only a lot worse and a lot slower. On the first level, Starship Enterprise look alikes move jerkily towards you and fire jerkily at you. You move jerkily out of the way and jerkily blast the hell out of them until all that remains is a jerky explosion of space dust.

Up to the next level. This time as you move jerkily out of the way of the missiles and they turn (jerkily of course) in a random direction usually straight at you.

Next level. The missiles chase you and are incredibly difficult to get off your tail.

As you probably realize this game really does not impress me. The sound is boring and monotonous and the graphics are good but blocky. There are three different types of alien ship and the last is the most powerful. There are only four levels and I got to the fourth quite quickly, though I must admit by that time I was beyond caring.

The best things on this tape are the demo screens of Winter Events.

Definitely not! is all I can say, Monty on the Run or Winter Events would be a much better buy.

Price: £6.95
Graphics: ★★★
Sound: ★★
Playability: ★
Rating: Naff

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CCI Rating C64 MEGA

Busgy Maroon meets Trixie Trinian from CRL

Hiya. My name's Bugsy, Bugsy Maroon. I'm a pale blue rabbit some three feet in height wit' a cude little powder-puff tail. Great press release that!

Set in 1922, in the days of the prohibition when alcohol was banned and people drank Ginger Beer, you play Bugsy Maroon, a pale blue etc....

Bugsy is a penless street bunny (these press release quotes are really to good to miss out) who has to work his way up to be Public Enemy No. 1 in the Chicago underworld, ousting "that fat wimp Capone."

One of the first problems is gettingpeople to take Bugsy seriously. After all, would you take a pale blue rabbit — especially one with a powder puff tail seriously? The police are also constantly watching you, and the other mobs, currently more powerful than you, against your ursurping them, so expect trouble from them too if you start becoming powerful!

You communicate with other characters in the adventure — it is an adventure — by means of a novel pop-up menu which includes options such as Bribe, Protect (protection racket), and Offend along with everyday terms such as Buy and Greet. Altogether this allows you pretty comprehensive communications facilities.

The game comes in two parts, a feature whch seems to becoming more and more common as programmers start to run out of even the 64k available on the 64. Work your rabbit up, earn him money, get him the status symbols a successful crime boss is meant to have. Make that Bunny go!

St Brides are responsible for the programming of this game, and have successfully given it great style and character almost unrivaled in other adventures. CRL could well be the first company to succeed on popularising the adventure so that not just puzzle-loving masochists can play them.

Price: £7.95c/£12.95d
Graphics: ★★★★ *(slow drawing though)*
Sound: N/A
Playability: ★★★★
CCI Rating: MEGA

CCI Rating C64 AWESOME

Dracula — the adventure from CRL

There have been comics, films, series, records, and all manner of Dracula based items, but as of yet not a good computer game, although Scott Adams did produce a pretty good vampire adventure a few years ago in the days of neolithic prose and parsers.

CRL's Dracula is the 'official' Dracula game, based on Bram Stoker's original novel and follows the book's plot like a leech. This has led you to become rather limited in your options and requires a different frame of mind to normal adventures when playing. Some very obscure things like what you eat and drink affect your chances of staying alive and believe me death starts very early on in the game.

Dracula comes in three parts, and you don't have to complete part on e before you can go on to parts two and three. CRL do hasten to add however that playing one part without having completed the previous part(s) is rather pointless. After all, as my Geography teacher used to tell me when I copied someone else's work, you're only cheating yourself!

Dracula's prose is excellent and is fun to read in itself, which is a mark of a good adventure. An adventure should not be just a strung together program of puzzles, instant unreasonable death like a block of stone falling on you from out of nowhere whilst you're walking down the high street, but an enjoyable, challenging game. This Dracula accomplishes admirably.

There has been some ruckus over the graphics in the game. Some of them were made using digitising techniques, and then touched up. The result is a very life-like impression, and very gruesome too ... pictures of you with your head through a window with blood streaming out are quite common and even though some people may say it is disgraceful to release a game with these graphics, why shouldn't they? Today's television programs see much more violent scenes and crimes which children can relate to the real world far more easily than some graphic out of an adventure game. There has also been talk of x-rating the game which is obviously only going to increase sales ... stupid idea.

Accompanying the graphics (which only appear when you are about to die) is quite a good arrangement of Bach's Toccata and Fugue in D Minor which adds to the chill.

As a regular adventure player I was at first rather annoyed at your limited range of options, but as I played it more I found myself enjoying the prose, the atmosphere, and the game more and more. Don't let it worry you, and it won't limit you. Just play along with the game!

This game is great. Fabulous graphics (even if they are a bit violent), one of the few adventures with good music, in fact any music at all, and excellent prose. Along with their other release, Bugsy Maroon, CRL have a very good line up of adventures. I hope they continue to release this quality of game.

Price: £9.95
Graphics: ★★★★★
Sound: ★★★★
Playability: ★★★★★
CCI Rating: AWESOME

GREAT... AMAZING... SENSATIONAL.. COMPETITIONS IN CCI!!!

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1) Name two U.S. fighter planes, one from World War II, one from the present U.S.A.F.
2) Name the U.S. spyplane shot down by the Russians whose pilot was Gary Powers
3) How long was Major Bill Steeley a fighter pilot?
4) What is the full name of the B52 bomber and which computer is nicknamed B52?

Closing date: January 15th.

WIN COPIES OF CRL'S DRACULA

Put this in your Xmas stocking and it'll bite its way out! If you *really* fancy squirming to some of the most gruesome x-rated graphics you'll ever see, simply answer the following questions:

1) Who was the original person on whom Dracula is supposed to be based?
2) Name a previous game hit by the company who wrote "Dracula"?
3) Who starred in the recent film "Love At First Bite"?
4) In which country (or countries) is Transylvania to be found?
5) When is the Witching Hour?

The first 25 correct entries drawn from our competition sack will receive a copy of the game. Answers on a postcard to reach us before sunrise, January 15th.

P.S. Absolutely no garlic please!

C16 Finders Keepers competition

Mastertronic are offering 25 Finders Keepers (C16), 25 posters, and 25 t-shirts each to the winners of our competition! Just tell us:

1) Who discovered America, and what is the date of his nameday?
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3) Who found Lucy Locket's pocket?
4) Of which nationality were the recent finders of the sunken Titanic?

In each case the winners will be the first 25 pulled out of the Comp. sack. Answers on a postcard please, no later than January 15th. Post to CCI, stating which competition and including your name and address.

Martech C64 UCHI-MATA competition

Answer the following four questions correctly, and you could win yourself one of Martech's fabulous judo games, Uchi-Mata!

1) Where did Judo originate?
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4) Guess the name of Mr 'X' of our ad dept who was taught Judo by Uchi-Mata's Brian Jacks?

(No, Dave Martin, you may not compete!)

Multisoft 64/128/Plus 4

Commodore MULTISOFT Assembler and Program Development System for the PLUS/4, Commodore 64 and Commodore 128

There are a number of techniques of producing a finished machine code program on the above machine and the two most popular methods involve either a *Compiler* or an *Assembler*. The first step is to create the *source code* using an *Editor* before feeding this file to the compiler or assembler. The output file from either of these is termed the *program file* and this will operate either from a direct call from BASIC or by a machine code call.

Compilers have the benefit of allowing the programmer to create *high-level* code, that is code in a readable English form using a high-level language such as BASIC or PASCAL. This also has the benefit of allowing fairly fast creative cycles assuming that a compiler of the programmer's preferred language is available. A compiler itself is a fairly complex piece of software since it has to employ syntax analysis and optimising algorithms in order to produce the best possible code. Thus a compiler is only as good as the programmer who wrote it and in general terms you get what you pay for.

An assembler will read through the source code file several times. The first read cycle or *pass* will check for syntax errors and create the processor instructions whilst the second pass takes care of the lables which have to have their location addresses resolved. Because and assembler language source file is far removed from English the inclusion of comments is of vital importance. The professional programmer appreciates the need for software documentation during the debug phase whilst the home user will be looking at this from the viewpoint of clarification of the software's original requirements — amazing how quickly you can forget what a program was written for after leaving it for a few weeks!

If you intend to write something useful in assemly language there are two problems to be faced. The first is the need to learn the language itself, whilst the second entails a close familiarity with the functions and facilities offered by the hardware. An assembler which is a genuine joy to use is a rare beast and the full symbolic facilities, editor and monitor offered by the **Multisoft Assembler Program Development System** is such a package and should prove to be the only assembler you will ever need to buy for any Commodore 8-bit machine.

Single Disk

The package is supplied on a single 1541 format disk and is suitable for use on the PLUS/4, C64 and C128 in 80 or 40 column mode. This allows users to cover all the current mainstream 8-bit machines and represents a useful saving since there is no need to purchase another assembler if you change computer (other than the AMIGA of course!). The software automatically detects the machine into which it is loading and **all three elements** of the package are loaded at the same time. This is a very good idea since a package of this nature will tend to have several *edit-assemble-run* cycles before the source code is correct and loading everything into memory will represent a substantial time saving to many users.

After loading the software a screen is displayed with all of the keywords for use. Most of these are self-explanatory and are detailed below. By executing the *SCROLL* command the screen display becomes much more useable and removes the word *list* from a user's vocabulary. When the cursor reaches the base of the screen, the source code listing scrolls up — conversely, when the cursor attempts to move up beyond the HOME position the listing moves down and displays earlier lines. Simple and yet very effective. Other powerful screen control features are accessed via the function keys, thus **F1** will re-display the screen starting at the very first line of the listing, **F3** displays the listing starting at the current line number pointed at by the cursor while **F5** will provide the next block of 25 lines or one screenful. When running on a C64 the **F7** key will provide a *line-insert* that even puts the appropriate line number on the screen for the user!

Useful Trick

The editor also includes a *FIND* together with a *FIND* and *REPLACE* facility that has sufficient sophistication to limit its operation to defined line numbers. A particularly useful trick is to *FIND* all references to a required op-code or label and then display the program from one of the lines displayed using the F3 key. Neat and efficient — even more so when this can be used from BASIC. The source code files are stored on the disk as a standard sequential files and are accessed using the *GET* and *PUT* commands. Incidentally, the *PUT* facility allows the user to save off a line number range.

Large tasks are assembled by reading source files from disk and writing the finished code back to disk as a program file. Alternatively, you may assemble small programs directly from memory into memory or a program file, read source files and assemble into memory, etc. In addition screen and printed listings may be requested, the latter being conveniently paged and numbered. Errors are always displayed on the screen under one of 16 headings even if a hard copy is not requested. By using the *.NOLIST* directive and then requesting a hard copy, all that is produced by the printer is an error listing — an excellent way of fixing source file bugs before producing a final program file. There are several example files included on the disk and some time spent working through these is a certain way to familarise yourself with the package. The assembler may be commanded to create a symbol table, a list of lables and declarations sorted into order together with their numeric values or addresses. This file may also be used as a declaration file for patch activities or other sections of a multiple program suite.

For C128 users one of the example files provides source code for a screen dump in 80 column mode and provides some useful insights into the workings of the 8563 screen controller circuit. C64 users have a MONITOR provided (the other machines already have a built-in monitor) which gives all the facilities as that on the C128 as well as the classical *DOS Support* package. PLUS/4 users are not forgotten and they are also provided with the *DOS Support*. JCL Software believe that it is often not worth the effort of writing very large programs entirely in machine code and the most cost-effective approach in terms of time is by the use of hybrid programs containing a mixture of BASIC and machine code. I must agree with them and this is exactly the approach recommended for the AMIGA except that C is used in place of BASIC. Blending these two elements of BASIC and machine code together does not mean that the former cannot be edited without upset unlike some assembler systems and the 60 page manual provides a detailed discussion of hybrid programs and their creation.

Low Cost System

For those developers who are intending writing code for the CMOS 6502 series of processors or the 16-bit 65816 processor can use this package since it allows for the redefinement of opcodes. A utility is provided so that the main and direct assemblies as well as the monitor disassembler can use the new opcodes. This means that the PLUS/4, C64 or C128 can serve as a low-cost development system.

Each assembler has a *back-door* SYS entry point so it may be put under control of a BASIC program or command file. After assembly an error flag is posted to a PEEKable location so that if all is well the finished code may be loaded into memory and run by another SYS call. Once more the disk provides working examples for each machine. The *TYPE* command allows the user to read a file directly from the disk to the screen or printer as device number 4. This is very useful for taking a quick peek at another source file without the inconvenience of discarding the existing file in memory — control can even be extended to margins, headers and footers as well as page lengths!

The remaining facilities of this astounding package includes *JOIN* which the concatenation or linking of BASIC files into memory, *CBM* and *ASCII* directives for the printer, *SIZE* which reports the start and finish addresses of a program file, *Do* will execute the first line of a source file even if it is behind a REM statement. *WORDS* provides a screen listing of all of the commands available and can be called at any time, *HD* and *DH* provide a hexadecimal/decimal conversion while *AUTO* switches on line numbering. Finally, the exquisitely named *BOOM* does a system reset.

I recall from the AMIGA Software Developers Conference in December 1985 (over a beer, or rather several beers!) that Richard Leman of JCL Software talked of producing a **real** development system for **practical programming at beginner to advanced level.** This package undoubtedly performs to such a specification. At the time of writing Commodore UK have not yet released this product and some confusion exists as to the launch date. JCL Software have been authorised through Commodore Electronics Ltd to ship direct to end-users so in any event you can purchase this first-class product immediately. Another superb effort from JCL with a package that should be a part of every self-respecting programmer's software library.

BD

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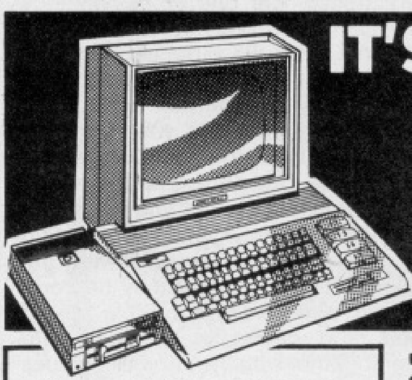

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C64

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C16

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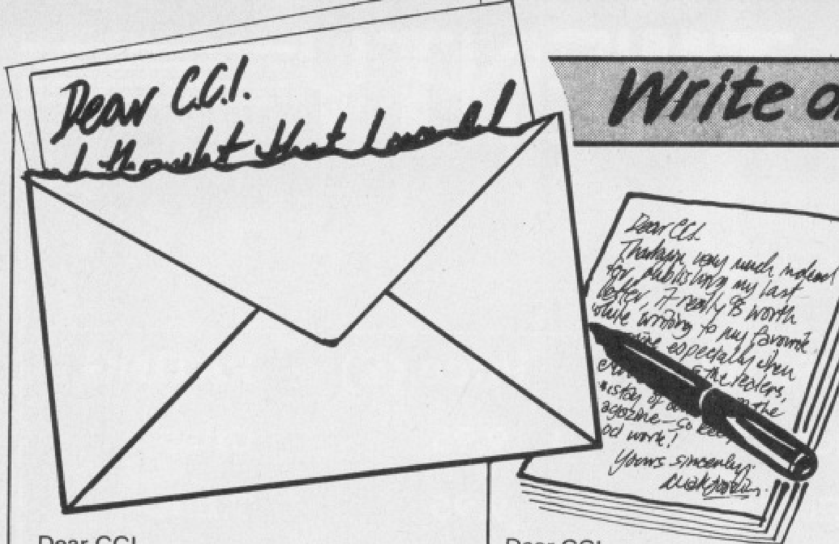

Dear CCI
I own a Plus/4 and I read your mag every single month without fail. It's a brilliant mag, and there's tons of Plus/4 and C16 stuff in it too. I have made a Plus/4 magazine which is brilliant, so my friends and relatives say. It is packed with reviews, news, charts, new games list, reviews to come, public page (letters) and more. It's nearly bursting with stuff!

Anyhow I wondered if you could mention my mag and it's club in Felix's page (it's my favourite!) and I would be so happy.

By the way, the mag is 10p per month, or £1 subscription. You get it free on your birthday and at Christmas.

Thank you very much.

Yours faithfully,

Andrew Hagon, 12 Fowlers Farm Road, Stokenchurch, Nr High Wycombe, Buckinghamshire HP14 3PU.

Well, there you have it! Can't be bad for 10p can it? Send us a copy Andrew!

Dear CCI
With reference to your November issue of CCI, I can't think why we want to know about the "AMIGA". What a waste of a pound, the best part of the magazine was taken up with it and we can't even use their software.

Anyhow enough of that — what I would like to see included in the pages of your magazine are items, e.g. small routines in machine code. Nothing big just simple programmes explained in detail (assembled by hand).

The C64 is simply a hobby with me — I get satisfaction from drawing high resolution graphics — but I can't get any books on that particular subject to speed things up — I prefer to do it by hand rather than by assemble in order to understand what is going on. So a little space each month on machine code wouldn't go amiss as far as I'm concerned.

Yours faithfully,

Mr R. Atkinson, Huddersfield, Yorks.

Well Mr Atkinson, nobody else supports the fast-growing number of Amiga users, so we do! We would publish more routines if we were sent them, but unfortunately, we are not. So if anybody out there has any small/good routines, send them in!

Dear CCI
As a regular reader of CCI, I find myself very frustrated, because I own a PLUS/4, and as you know, most of your coverage relates to the venerable 64. Whilst I understand your own reasons for this, I do not understand the software producers attitude. Do they not realise that since the +4 was reduced to silly prices, very many of these excellent machines have been sold?

Generally speaking, +4 software has been written for the 16 which is +4 compatible, but which does not take full advantage of the huge memory (6067 BYTES FREE), that is available to the +4. 64 owners go green!

To my knowledge, only one producer of serious software (Precision), has thought it profitable to cater for the +4, first with "Superbase", and now with "Script/Plus". And what excellent programs they are, I use both of them regularly. I already had Superbase V2 for my 64, and when I decided that for my task, it would be handy to have two computers, my choice because of its price was the +4, and also because my Superbase disc also contained a +4 start program. This meant that all my work on the 64 would also run on the new machine. My son now has the old 64, and I have bought another +4 to run in tandem.

When I handed over my 64, my only regret was the fact that I could no longer use the very excellent "Easyscript" for my wordprocessing, so when "Script/Plus" was released, I grabbed it, and would you believe it? I think it is far better, a great improvement on "Easyscript".

Through your column, may I congratulate Precision on their foresight, and on the sheer brilliance of their programs. May I also thank CCI for the support that it has given to this unfortunate machine. Perhaps if Commodore were to colour them white, remove the +3 software and call it the the 64+C, it would get the recognition it richly deserves.

Yours faithfully,

D. Coppard, Wymondham, Norfolk.

Unlike other magazines, CCI believes in supporting the C16 and +4, a lot of which are around. Unfortunately, there is not much call for serious + software which probably explains the lack of it.

Dear CCI
I am writing to congratulate you on publishing the program "Printer Enhancer C64/C128" by Duncan Anderson. It is programs of this quality that make CCI worth buying. Will you please pass on to Mr Anderson my thanks and I should think the thanks of all owners of the MPS 803 and the MPS 801. The quality of the printout is the best I have ever seen. Incidentally this letter was printed on a MPS 803.

I am pleased to read in the editorial that features on Simulations are to be introduced and that more space is to be given to programs. As a reader who has been buying CCI since 1984 I will be pleased to to see this. Most of my original utilities come from your pages. I hope that the magazine will go back to being the best for the Commodore owner that it used to be.

As an old dodderer in my mid-forties I am not much interested in shoot-em-up arcade games, but I suppose you must cater for the young. Anyway keep up the good work and PLEASE more printer utilities.

David Peacock, Fleetwood.

A lot of people have used this program when writing to us, and it seems to be pretty popular. The reasons we don't publish more utilities is that, quite simply, we don't get many in! Get 'em rolling!

Dear Readers,

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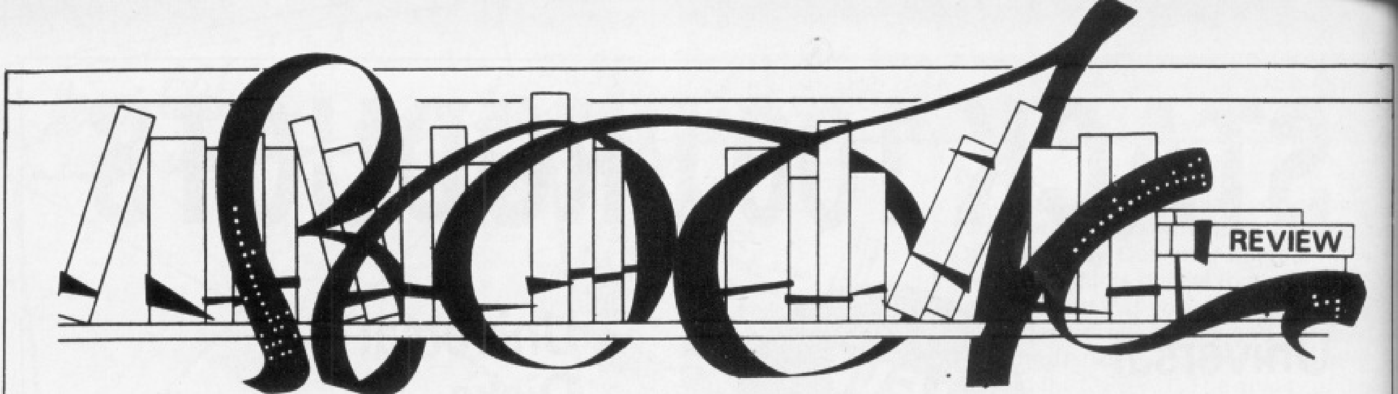

POWER PROGRAMMING THE COMMODORE 64 — ASSEMBLY LANGUAGE, GRAPHICS AND SOUND — J. Sutton, Prentice Hall — £18.95

This has to be the best book I have seen durig 1986 for the C64. Do not let the title fool you — yes, it is patently American in origin but totally misleading. It is not another one of those "take your BASIC interpreter in your right hand and start here..." type of book which 600 lines later leave you with a silly sprite graphics program along with a "SYNTAX ERROR IN 487" screen message. The style and presentation make this a book to treasure. With chapter titles such as *"Conceptual Quicksilver: Data Structures"* and *"Vocal Chords for a Chimera: Sound Synthesis"* this is not so much an exposition on programming more a detailed philosphic guide to the 'why this approach is best' in programming. Too many programming books have taken the line of here is a program, this is roughly how it works, type it in. The presented program usually bears little relevance to real-life situations and is invariably forgotten by the reader. This technique is very blinkered since it ignores one of the basic precepts of teaching — that is the explanation of the selection critera for the solution to the given problem — even more important in computer programming since there are usually many routes to achieving the desired result from the program in hand.

The first chapter gets the mathematics out of the way and we charge through binary and hexadecimal at an impressive rate of knots. The manner of presentation here is largely based on that used in the Osborne/McGraw-Hill series of books. The 6510 CPU also comes under scrutiny during this particular chapter and presents some information about the internal structure which, hitherto has not been published. Chapter 2 on Data Structures continues in the same vein of presenting existing knowledge in a highly readable form whilst stimulating fresh ideas from the reader by further interjections of new material. The standard principles of data structures such as queues, linked lists and the stack are intensively covered.

Chapter 3 addresses the direct programming of the C64 and 6502 assembly language raises it's head. However, rather than cover ground given so much clarity in other works such as Leventhal, the author concentrates on topics directly relevant to his book — this is continued in the remaining chapters on graphics, sound and input/output. At the end of each chapter there is a biblography of suggested further reading — a nice little touch which adds to the enjoyment of the book. Only one black mark — no index, although this complaint can be offset with a highly detailed Contents listing at the beginning of the book.

Given the title of this book one would have expected to find some actual 6502 programs inside. In point of fact the book did not contain any as such — the author used a diagramatic mechanism or a Pascal type language to explain programming concepts. Either approach was both innovative and successful, I can't think of anything more boring than reading a list of assembly language instructions written by someone else. I found myself reading this book several times and on each occasion learning something new. The author states that it took several years to write which I can well believe. In the course of nearly 350 pages James Sutton provides the reader with a C64 programming classic. Very highly recommended.

Power Programming The Commodore 64 — Assembly Language, Graphics and Sound. Sutton J. Prentice-Hall £18.15

THE COMMODORE 64 CONNECTION —Sybex Books —£9.95

It is only within the last year or so that publishers have realised that a market exists for learning about interfacing principles, communications and how mass-storage devices operate on the 64. For example, just what is an analogue-to-digital convertor and what would I do with one?

Any person who is interested in hardware projects will need both electrical component handling and soldering skills and in most cases these have been acquired through practical experience. The book starts off with the programming aspects of input/output on the C64 in relation to the Expansion Port — the User Port appears to be ignored. The language used is BASIC but since i/o is largely a matter of reading, writing or comparing bit values to a location the conversion to machine code should not present any great problems. We are then taken on to more practical matters and three main projects emerge. These are a home security system, a temperature control system and a speech synthesiser.

None of these topics is covered down to the last detail, the reader is expected to design, fabricate and mount his or her own component boards — simple block diagrams are provided to show the location of individual components in relation to each other. The book is indexed and a glossary provided. Among the many appendices are names and addresses of sources of components, unhappily restricted to the USA along with manufacturer's specification sheets on the various components used throughout the book. A good book to purchase if you have an inclination towards interfacing the C64 and want to know a little about how it can be done. However, there is a good deal more to interfacing than this book provides and it gave me the strong impression of merely scratching the surface although for the price it is the only one of its type.

The Commodore 64 Connection J.W. Coffron Sybex Books (obtainable from Pitman Publishing) Price: £9.95

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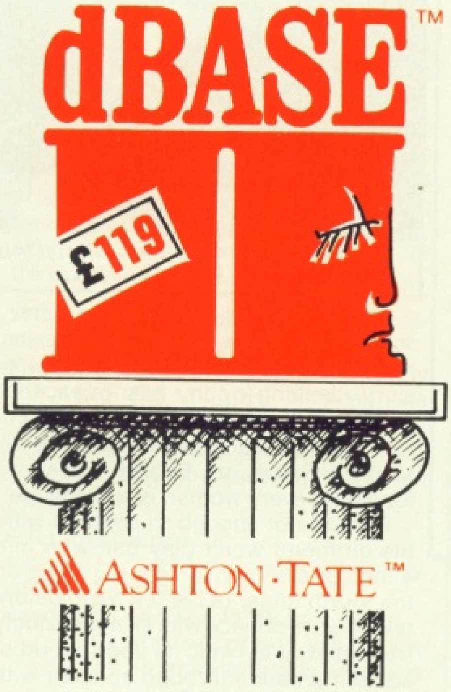

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MOVIE SCENE

ALIENS

So who says big boys don't cry? A close encounter with 'Aliens' can terrify the biggest and butchest of men. Two and a half hours of the sheer effort of gripping your cinema seat is guaranteed to leave *anyone* a physical wreck!

This tremendous sequel to 'Alien' again centres on Warrant Officer Ripley (Sigourney Weaver), lone survivor of Round One. Awakening from hypersleep means stepping back into a nightmare, as she is manoeuvured into a return trip to investigate a far-flung settlement where the colonists are quite literally playing 'host' to the aliens . . . and they're *not* exactly the type of guests you invite to sign the visitors book!

Backed by marines parading their bravado as blatently as their hardware, Ripley embarks on what is expected to be merely a little gaulactic spring cleaning, but soon develops into an impossible battle against agonising odds.

Quite apart from Machiavellian — minded creatures, there's trouble in the ranks from the token corporate man who gives the term "illegal alien" a whole new meaning, with his potentially profitable little venture of importing them via hapless carriers. .

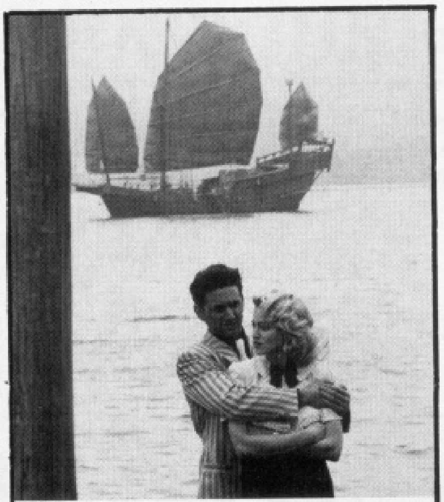
With a creative team drawing on experience from such commercial box-office successes as 'The Terminator', 'Rambo' and 'Southern Comfort', 'Aliens' is the best futuristic thriller you'll see in a long time. You won't often be recommended to see a film that's unbearable to watch, but at times it's truly agonising waiting a few seconds or even daring to contemplate what could happen next.

'Aliens' is guaranteed to have you spilling popcorn all over your Gucci's. Take someone to hang on to . . . you'll need it!

The Aliens prove to Ripley that in Outer Space, Outer sight isn't Outer mind . . .

SHANGHAI SURPRISE

If this is Eastern promise, then somebody went back on their word . . . Shanghai Surprise is a vehicle for the talents of the Poison Penns (as they've been dubbed) and it's sorely in need of an M.O.T. Rarely getting above second gear, it rattles along on a decidedly wavy course before spluttering to a rather obvious conclusion.



The Penns debate how to cope with this junk, (the boats a problem too!)

Some movies are made by a partnership — Bogart and Bacall, Hepburn and Tracy or even more recently Douglas and Turner. But the Madonna and child-like Penn duo don't ever really threaten to don their laurels. There's no electricity betweem them, no reason to suggest why a sharp, brash drifter should fall for an innocent abroad. There are not enough sparks between them to generate a great deal of energy on screen, and what's there emanates from Sean Penn with his greater acting experience.

Without an added ingredient from this (in) famous couple, what could be enjoyable implausible becomes just silly. The big seduction scene is downright embarassing.

Shanghai Surprise revolves around a cache of high grade opium, known a "Faraday's Flowers" hidden somewhere in Shanghai and drawing the attention of rather too many people.

Glendon Wasey (Sean Penn) is bullied and bribed into aiding Gloria Tatlock (Madonna) find it's whereabouts to boost failing medical supplies for the troops fighting Japanese occupation. Easier said than done, especially with gangsters, exotic concubines and murderous police officers trying various means of "disuading" them from their goal.

Handmade Films have produced some notable British comedy adventures (e.g. "Water", "Time Bandits" etc.), but this isn't one of their better ventures. A sprinkling of sex and drugs and rock and roll just saves this from being a film to which Walt Disney would have been proud to add his name.

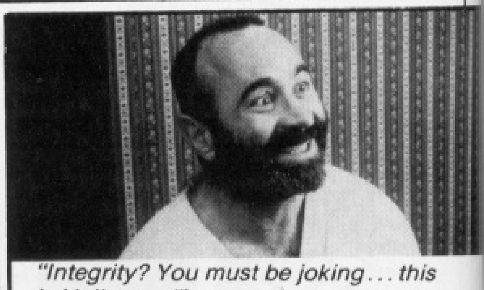
Take heed of your doctor's warning and remember that too much saccarin eis bad for your health . . .

SG

SWEET LIBERTY

Life is certainly not a bed of roses for Alan Alda of Mash fame, who plays a college lecturer and author in the film Sweet Liberty. He certainly has his work cut out when a film crew descend upon his home town, with the intention of making a movie of his latest book, set in the time of the American War of Independance.

Alda is horrified to discover that his book has been rewritten almost out of recognition for the purpose of making a record hit at the box office.



"Integrity? You must be joking . . . this is Hollywood"

With the aid of the film's half crazy screen writer, played by Bob Hoskins, he sets out to resurrect the original story, resulting in some hilarious scenes as his efforts are thwarted by the director and the leading man (played by Michael Caine), an English Casanova for whom every woman is a challenge.

If that's not enough to contend with, his girlfriend won't play ball with him either. She is intent on getting a ring on the fourth finger of her left hand before taking up residence with an increasingly frustrated Alda (well, he does get rid of some frustration through an affair with the blonde tough/tender leading lady).

Adding to his problems is his nutty old mother who believes the devil lives in her kitchen and has him chasing around after an ex-lover of many years gone by.

Its all enough to drive any man bananas!. Although dull in parts, the film is brought to frequently very amusing life by the especially humourous performances given by Michael Caine and Bob Hoskins.

C Print

by Andy Eskelson and Gary Cattley

This is an interesting printer routine for non-Commodore, Centronic printers. As it is Epson based, it will work with most of the current Centronics printers — which should interest a large number of 128 owners.

This program provides the C128 with a centronics printer port by making use of the C128's user port. It is fully integrated into the operating system and can be accessed with the normal file command structure.

There are several operating modes that have been implemented to provide a comprehensive printer driver routine, and these modes are accessed by using the secondary address attribute of the file command structure. The modes provide a full listing mode, quick listing mode, a printer command mode, and alternate character set modes. Each of the operating modes is described below.

In the following descriptions, abbreviations have been used:

lfn: Logical File Number — this is any valid file number between the range of 4-127.

dev: Device Number — this is any valid device number between the range of 3-31.

FULL-LIST mode
Activate by: OPEN lfn,dev,0 (secondary address optional)
Examples: OPEN 4,4:CMD 4 :LIST

This will print a listing of a program to the printer as it would appear on the screen, including the graphic characters.

OPEN 4,4:PRINT#4,A$

This will print the string A$ to the printer, again the graphic characters will be printed.

COMMAND mode
Activate by: OPEN lfn,dev,1
Examples:

OPEN 4,4,1: PRINT#,CHR$(27)+CHR$(45)

This will send the characters 27 and 45 to the printer with no conversion. Commodore does not use the standard ASCII character set, so using ASCII characters as shown in most printer handbooks to access the special functions of the printer can cause strange things to happen. Using the COMMAND mode overcomes this problem.

DRAFT mode
Activate by: OPEN lfn,dev,2
Examples: OPEN 4,4,1: CMD4:LIST

This will perform very much as the FULL-LIST mode with one very important difference: NO graphic or control characters will be sent to the printer.

To print graphic characters, the printer has to be put into its graphic dot image mode and the correct dot pattern sent to it. This tends to slow the printer down consideraly, so during program development when only a rough listing is required use this mode. In order to keep the correct relative positions of text and graphics every graphic character is replaced with a '?' question mark.

ALT FULL-LIST mode
Activate by: OPEN lfn,dev,3

This provides the same functions as the FULL-LIST mode but it uses the alternate character set.

ALT DRAFT mode
Activate by: OPEN lfn,dev,4

This provides the same functions as the DRAFT mode but it uses the alternate character set.

All of the above commands may be used freely within a program for text and graphic output. Note that the full set of printer functions is available to the programmer from within the COMMAND mode so applications such as screen dumps and Hi-Res graphs are possible.

There are several other functions that the programmer may require access to, they are:

POKE 5754,x Where x = graphic character pitch code
x = 0 graphic pitch = 480 dots
x = 1 graphic pitch = 960 dots
x = 4 graphic pitch = 640 dots (default)
x = 6 graphic pitch = 720 dots

POKE 5749,x Where x = No of characters per line (default 80)
POKE 5751,x Where x = device number (default 4)
POKE 5750,x Where x = auto line feed control
x = 0 auto line feed off
x = 1 auto line feed on

And finally to activate the routine use SYS 4864 and to deactivate the routine use SYS 4867.

User Port Connections

To connect the printer to the user port, the interconnecting cable must have the following connections.

User-port	function	Centronics plug
C (D0)	data line 0	2
D (D1)	data line 1	3
E (D2)	data line 2	4
F (D3)	data line 3	5
H (D4)	data line 4	6
J (D5)	data line 5	7
K (D6)	data line 6	8
L (D7)	data line 7	9
M (PA2)	strobe	1
B (FLAG2)	acknowledge	10
N (GND)	ground	16

This program is of the 'wedge' type, in that it inserts extra code into the operating system. As Commodore have provided a series of vectors for things like LOAD, SAVE, and the one that this program uses CHKOUT and BSOUT. CHKOUT is the vector that performs the function of defining a logical file as th eoutput file. BSOUT is the vector that sends the character to be outputted to the open file defined as the output file by the CHKOUT routine.

The 128 is continuously changing the output device, and just about every other device during the normal operation of the computer. So the program must detect when the output device is the printer, then the character that is to be outputted must be directed to the part of the program that outputs the character to the centronics printer. In order to do this the vectors CHKOUT and BSOUt must be changed., This allows the character output to be controlled by the program.

As a part of the setting up of the routines the vectors are checked to see if the routine has been activated before, and if it has been the sign-on message is not displayed. Also if the message is not printed. This enables the programmer to make use of the routine without upsetting any screen displays. Either way the main function of the setting up is to change the vectors and to set up the user port as a centronics type printer driver.

When the PRINT# command is used the changed vector at CHKOUT diverts the program flow to the routine index by OPEN (see source code listing), if the device is the printer then the port is set up, and the location OUTDEV is set up with the printer device number.

When a character is outputted via BSOUT it is diverted to the PRINT routine (see source code listing) this routine checks to see what device the character is intended for, and if it is NOT the printer the control is passed back to the normal C128 routines. If the device is the printer then several things happen. The character is saved, then the type of printer operation is determined by checking the secondary address associated with the device. Depending on the value of the secondary address the FULL-LIST, COMMAND, DRAFT, and ALT modes are selected.

When it is required to print a graphic character, the program first ensures that the character rom is in the current memory bank, and the dot pattern for the required character is accessed and stored in a buffer. When all the sequential graphic characters have been read (ie until the first non-graphic character) the buffer is sent to the printer. Even if the printer is in the DRAFT modes the program will still print some graphic characters, the PI, POUND, and UP-ARROW characters, this is necessary because these characters are vital in the text of a program for mathematical calculations and the like.

Two methods of entering the program are provided, the first is the full assembler printout. This is a standard CBM assembler and is compatible with the C64 assembler. Remember you must not enter the LINE#, LOC or CODE columns, only enter the LINE column and any of the comments that you wish to. I would recommend that the comments are included as the program flow is well documented by them and a much better understanding of the program will result, especially if you wish to make any modifications to the routines.

The second method is to use the BASIC loader, this is fully error protected and if a mistake is made then the line that has the error will be displayed. When all the data is correct, the binary file of the printer will automatically be saved to tape or disk. But as with all basic programs that you type in, SAVE BEFORE YOU RUN!, this is the golden rule and can save a lot of frustration especially as the program is quite long.

When the basic loader is used three questions are asked, this allows the user to configure the program to a small degree. The options are:

1. Set default device number. Normally this is set to 4 but if you have, say a Commodore printer as well as a Centronics type, this allows you to leave the Commodore printer set to device 4 and allocate another number to the Centronics printer.
2. Set number of characters per line. Normally this is set to 80, but it may be changed to suit different widths of paper.
3. Set auto line feed, because some printers require a line feed after a carriage return this function will insert the line feed automatically. This function is also useful if the printer is swapped from machine to machine, as it avoids the possibility of having to open the printer to change the setting of an internal switch.

The memory requirements of CPRINT are quite modest, 415 hex bytes or in decimal 1045 bytes, inclusive of buffers. As the buffers are set up by the program there is no need to save the memory containing the buffers. But you must remember that if you write any other code that will co-exist with CPRINT to allow for the buffers when the program sets them up. The memory addresses are given below.

start address	1300 hex	4864 decimal
program end	1688 hex	5768 decimal
buffer end	1715 hex	5905 decimal

The addresses 1300 to 17FF are listed as unused in bank 0 so this is where the program resides. It has been tested on a Canon PW1080A and in both cases the driver performed as required. As the Canon printer is compatible with the Epson range of printers the routine should work with a compatible Epson printer.

```
1000 REM BASIC LOADER FOR C128-CENTRONICS UTILITY
1010 :
1020 REM (C) A.ESKELSON & G.CATTLEY
1030 :
1040 N$="CANON":N=LEN(N$)
```

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1060 BANK 0
1070 SA=DEC("1300"):REM START ADDRESS OF ROUTINE
1080 EA=DEC("1689"):REM END   ADDRESS OF ROUTINE +1
1090 PO=SA:REM COUNTER FOR POKE ROUTINE
1100 FOR I=1 TO 112
1110 C=0:FOR J=1 TO 8:READ A$:A=DEC(A$)
1120 C=C+A:POKE PO,A:PO=PO+1
1130 PRINT PO,A$;"□"
1140 NEXT J:READ CK$:CK=DEC(CK$)
1150 IF CK<>C THEN 1390
1160 NEXT I
1170 PRINT"NUMBER OF CHARACTERS PER LINE  80";:INPUT "■■■■";CL
1180 PRINT"PRINTER DEVICE NUMBER  4";:INPUT"■■■";DN
1190 PRINT"DO YOU WANT LINEFEED WITH RETURN Y/N"
1200 AN$="NY":GETKEY A$:A=INSTR(AN$,A$,1):IF A<1 THEN 1200
1210 LF=A-1
1220 POKE 5749,CL:REM MAX NUMBER OF CHARACTERS PER LINE
1230 POKE 5750,LF:REM AUTOMATIC LINEFEED OFF/ON
1240 POKE 5751,DN:REM DEVIC NUMBER OF PRINTER
1250 PRINT"■■DO YOU WANT TO SAVE TO ■T▬APE OR ■D▬ISK"
1260 AN$="TD":GETKEY A$:A=INSTR(AN$,A$,1):IF A<1 THEN 1260
1270 AN$="TAPE":IF A=2 THEN BEGIN:AN$="DISK":GOSUB 1420
1280 BSAVE(N$),B0,P(SA) TO P(EA) :REM DISK SAVE
1290 BEND:GOTO 1370
1300 REM TAPE SAVE
1310 SH=INT(SA/256):SL=SA-SH*256
1320 EH=INT(EA/256):ED=EA-EH*256:GOSUB 1420
1330 POKE 194,SH:POKE 193,SL:POKE 175,EH:POKE 174,ED
1340 BANK 15:SYS 63281,N,128,10
1350 FOR I=1 TO N:POKE 2687+I,ASC(MID$(N$,I,1)):NEXT
1360 POKE 185,1:SYS 62920
1370 PRINT"■ ALL DONE ▬":END
1380 REM ERROR IN DATA LINE
1390 PRINT"■■■■ DATA ERROR IN LINE ";
1400 PRINT PEEK(66)*256+PEEK(65)
1410 END:REM CORRECT DATA RESAVE PROGRAM AND RERUN IT
1420 PRINT"□INSERT ";AN$" YOU WISH TO SAVE PROGRAM TO
1430 PRINT"AND PRESS RETURN KEY WHEN YOU ARE READY
1440 GETKEY A$:IF A$<>CHR$(13) THEN 1440
1450 RETURN
1460 REM DATA FOR MACHINE CODE
1470 DATA 4C,35,13,A9,4C,8D,20,03,239
1480 DATA A9,F1,8D,21,03,AD,69,16,377
1490 DATA 8D,26,03,AD,6A,16,8D,27,297
1500 DATA 03,20,54,15,24,7F,30,14,173
1510 DATA 20,7D,FF,53,4F,20,4C,4F,2F9
1520 DATA 4E,47,20,46,4F,52,20,4E,20A
1530 DATA 4F,57,2E,00,60,AD,26,03,20A
1540 DATA C9,E6,F0,03,8D,69,16,AD,45B
1550 DATA 27,03,C9,13,F0,0D,8D,6A,2FA
```

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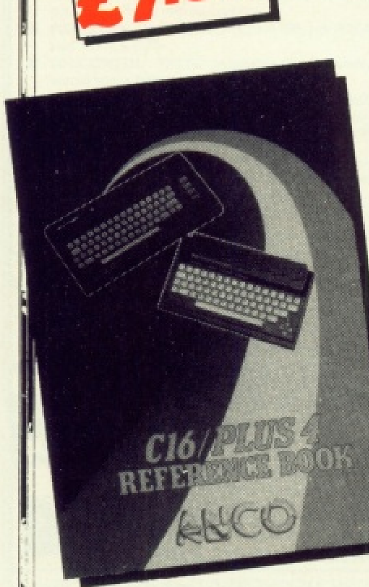

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1570 DATA 8D,26,03,A9,13,8D,21,03,223
1580 DATA A9,9B,8D,20,03,A2,0C,A9,34B
1590 DATA 00,9D,7B,16,CA,10,FA,20,322
1600 DATA 54,15,24,7F,30,29,20,7D,202
1610 DATA FF,43,45,4E,54,52,4F,4E,318
1620 DATA 49,43,53,20,50,52,49,4E,238
1630 DATA 54,45,52,20,44,52,49,56,240
1640 DATA 45,52,20,56,45,52,53,49,240
1650 DATA 4F,4E,20,31,2E,34,00,20,170
1660 DATA 62,15,60,20,54,15,20,02,182
1670 DATA F2,F0,03,4C,49,F1,20,12,39D
1680 DATA F2,D0,03,4C,46,F1,CD,77,48C
1690 DATA 16,F0,06,20,62,15,4C,56,245
1700 DATA F1,85,9A,20,C3,13,20,62,388
1710 DATA 15,18,60,A9,FF,8D,03,DD,3A2
1720 DATA AD,02,DD,09,04,8D,02,DD,305
1730 DATA A9,00,8D,01,DD,AD,00,DD,39E
1740 DATA 09,04,8D,00,DD,A9,10,8D,2BD
1750 DATA 0D,DD,AD,0D,DD,60,48,A5,3CE
1760 DATA 9A,CD,77,16,F0,04,68,6C,3BC
1770 DATA 69,16,8C,83,16,8E,82,16,2CA
1780 DATA 68,8D,84,16,A5,B9,29,0F,325
1790 DATA C9,01,D0,09,AD,84,16,20,30A
1800 DATA 6B,15,4C,AD,15,C9,05,30,28C
1810 DATA 02,A9,00,0A,AA,BD,6B,16,29D
1820 DATA 8D,81,16,BD,6C,16,8D,86,376
1830 DATA 16,AD,84,16,29,7F,C9,20,2EE
1840 DATA 10,5D,AD,84,16,C9,0D,D0,35A
1850 DATA 0B,A9,00,8D,87,16,20,3C,23A
1860 DATA 15,4C.AD,15,2C,86,16,10,1FB
1870 DATA 05,A9,3F,4C,E5,14,24,7F,2D5
1880 DATA 30,19,2C,87,16,10,14,AC,1E2
1890 DATA 87,16,A2,FF,8E,87,16,20,389
1900 DATA 0E,15,8C,87,16,20,31,15,1B2
1910 DATA 4C,AD,15,2C,86,16,10,05,1EB
1920 DATA 30,D7,20,B8,15,C9,12,D0,39F
1930 DATA 07,AD,87,16,09,40,D0,09,273
1940 DATA C9,92,D0,8B,AD,87,16,29,429
1950 DATA BF,8D,87,16,4C,AD,15,AD,3A4
1960 DATA 84,16,2C,87,16,70,66,C9,302
1970 DATA 22,D0,12,2E,87,16,B0,03,282
1980 DATA 38,B0,04,20,03,15,18,6E,1AA
1990 DATA 87,16,4C,EC,14,AD,84,16,330
2000 DATA C9,41,90,36,AE,81,16,D0,3E5
2010 DATA 11,AD,84,16,C9,5E,90,2D,33C
2020 DATA C9,60,90,41,C9,FF,F0,3D,4EF
2030 DATA D0,33,AD,84,16,C9,DB,B0,49E
2040 DATA 2C,C9,C1,90,04,29,7F,D0,3C2
2050 DATA 14,C9,60,B0,20,C9,5E,B0,3E4
2060 DATA 24,C9,5B,B0,08,18,69,20,2A1
2070 DATA D0,03,AD,84,16,20,03,15,252
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```
2080 DATA C9,5C,F0,11,20,6B,15,20,2E6
2090 DATA 31,15,4C,AD,15,2C,86,16,21C
2100 DATA 10,03,4C,41,14,20,0E,15,0F7
2110 DATA 4C,AD,15,48,AD,7F,16,F0,388
2120 DATA 03,20,DE,15,68,60,AE,7F,30B
2130 DATA 16,C9,FF,D0,02,A9,DE,48,47F
2140 DATA 0A,68,29,3F,90,02,09,40,1B5
2150 DATA 2C,87,16,50,02,09,80,9D,241
2160 DATA 90,16,EE,7F,16,20,31,15,28F
2170 DATA 60,EE,80,16,AD,80,16,CD,3F4
2180 DATA 75,16,D0,17,20,03,15,A9,253
2190 DATA 00,8D,80,16,A9,0D,20,6B,264
2200 DATA 15,AD,76,16,F0,05,A9,0A,2F6
2210 DATA 20,6B,15,60,48,AD,00,FF,2F4
2220 DATA 8D,85,16,A9,00,8D,00,FF,35D
2230 DATA 68,60,48,AD,85,16,8D,00,2E5
2240 DATA FF,68,60,20,54,15,8D,01,2DE
2250 DATA DD,20,E1,FF,F0,28,AD,0D,4AF
2260 DATA DD,29,10,D0,F4,AD,00,DD,464
2270 DATA 29,FB,8D,00,DD,EA,EA,09,46B
2280 DATA 04,8D,00,DD,20,E1,FF,F0,45E
2290 DATA 0D,AD,0D,DD,29,10,F0,F4,3C1
2300 DATA A9,00,20,62,15,60,A9,01,24A
2310 DATA AE,82,16,AC,83,16,68,68,35B
2320 DATA 20,62,15,38,60,AE,82,16,275
2330 DATA AD,84,16,AC,83,16,18,60,304
2340 DATA 48,A9,01,8D,00,FF,68,20,306
2350 DATA 41,47,10,06,20,4E,41,4C,199
2360 DATA D3,15,8D,7B,16,20,44,52,2BC
2370 DATA 20,59,59,85,12,8E,7C,16,289
2380 DATA A9,00,8D,00,FF,60,AD,7F,3C1
2390 DATA 16,8D,7B,16,A9,00,8D,7C,2E6
2400 DATA 16,8D,7E,16,A0,03,0E,7B,263
2410 DATA 16,2E,7C,16,88,D0,F7,B9,3DE
2420 DATA 78,16,20,6B,15,C8,C0,05,2BB
2430 DATA D0,F5,AD,81,16,0A,0A,0A,327
2440 DATA 18,69,D0,8D,7D,16,AE,7E,39D
2450 DATA 16,EC,7F,16,D0,06,A9,00,316
2460 DATA 8D,7F,16,60,BD,90,16,85,36A
2470 DATA FA,A9,00,85,FB,A0,07,99,463
2480 DATA 88,16,88,10.FA.A0.03.06.2D9
2490 DATA FA,2A,88,D0,FA,18,6D,7D,478
2500 DATA 16,85,FB,A2,01,8E,00,FF,3C6
2510 DATA B1,FA,A2,00,18,0A,3E,88,335
2520 DATA 16,E8,E0,08,D0,F6,C8,C0,534
2530 DATA 08,D0,ED,A2,00,8E,00,FF,3F4
2540 DATA BD,88,16,20,6B,15,E8,E0,3C3
2550 DATA 08,D0,F5,EE,7E,16,4C,0E,3A9
2560 DATA 16,79,EF,00,00,00,00,00,17E
2570 DATA FF,01,00,01,FF,50,01,04,255
2580 DATA 1B,2A,04,00,00,00,00,00,049
```

C128 Centronics Printer Interface

Here are the listings for October's article on interfacing a Centronics printer on the Commodore 128. The assembly code was created with Mikro assembler, and the other two listings are basic loader programs. CCI apologise for the omission of these listings in last month's edition.

ASSEMBLY SOURCE LISTING

```
1000 !===============================================================================
1010 !          User port Centronics interface driver
1020 !          for Commodore 128, 128D and 64
1030 !          Copyright Eric Deghaye , April 1986
1040 !===============================================================================
1050 !
1060 !
1070 ! Activate with sys 3072 for the 128 mode
1080 !
1090 ! Use with open 4,4 cmd 4
1100 !
1110 ! Make sure that the line feeds are on the printer
1120 !
1130 !-------------------------------------------------------------------------------
1140 !  The labels
1150 !-------------------------------------------------------------------------------
1160 !
1170 device        =   $9a                     ! current output device number
1180 cout          =   $0326                   ! cout routine vector
1190 ddra          =   $dd02                   ! data direction register a
1200 ddrb          =   $dd03                   ! datP direction register b
1210 dpa           =   $dd00                   ! dPta port a (for handshake)
1220 dpb           =   $dd01                   ! data port b (user port)
1230 ciairq        =   $dd0d                   ! external interupt request
1240 print         =   $ffd2                   ! output routine
1250 !
1260 !-------------------------------------------------------------------------------
1270 !
1280 *=$0c00                          !change this to $c000 for the C64 mode
1290                                  !and use sys 49152 to start up.
1300 !-------------------------------------------------------------------------------
1310 !       Change the chout routine vectors
1320 !-------------------------------------------------------------------------------
1330 !
1340            lda cout
1350            sta gochout+1                !place the vectors at
1360            lda cout+1                   !the point where we want to
1370            sta gochout+2                !jump to the chout routine
1380            lda #(check                  !change the original chout vectors
1390            sta cout                     !to point to our routine instead
1400            lda #)check
1410            sta cout+1                   !change this one (remember 'copy')
1420 !
1430 !-------------------------------------------------------------------------------
1440 !       Initialise the ports
1450 !-------------------------------------------------------------------------------
1460 !
1470 init       lda ddra                     !set line 3 of port a as output
1480            ora #$04
1490            sta ddra
1500            lda #$ff                     !set all lines on port b as output
1510            sta ddrb
1520            lda ciairq                   !clear irq request register
1530            lda dpa                      !set line 3 port a high for strobe
1540            ora #$04
1550            sta dpa
```

```
1570 !-----------------------------------------------------------------------
1580 !        Print message on screen
1590 !-----------------------------------------------------------------------
1600 !
1610               ldy #0
1620 fill          lda text,y
1630               beq finish
1640               jsr print
1650               iny
1660               bne fill
1670 finish        rts
1680 !
1690 !-----------------------------------------------------------------------
1700 !       the main course
1710 !       this is where the chout routine
1720 !       is redirected
1730 !-----------------------------------------------------------------------
1740 !
1750 check         pha
1760               lda device                     !get  device number
1770               cmp #$04                       !do we have a 4
1780               beq pout
1790               pla                            !this means that we do not want
1800 gochout       jmp $0000                      !the printer. go to chout then
1810 !
1820 !         note that the $0000 address will be filled at initialisation
1830 !
1840 pout          pla
1850               sta dpb                        !put our data on port b
1860               lda dpa                        !pulse the strobe line
1870               and #%11111011
1880               sta dpa
1890               ora #%00000100
1900               sta dpa
1910 wait2         lda ciairq                     !wait for the acknowledge pulse
1920               and #%00010000                 !by checking if bit 4 is set
1930               beq wait2
1940               clc                            !make system happy
1950               rts                            !and carry on
1960 !
1970 !-----------------------------------------------------------------------
1980 !         The text data
1990 !-----------------------------------------------------------------------
2000 !
2010 text          byt "        "
2020               byt "centronics driver on...."
2030               byt 0                          !this data is to signal the
2040                                              !the end of the text
2050 !=======================================================================
```

BASIC LOADER PROGRAM -- 128 Mode

```
10 rem centronics code for 128 basic loader
20 base=dec("0c00"):inc=0
30 read a
40 if a= -1 then 200
50 poke base+inc,a : inc=inc+1
60 goto 30
70 :
80 :
100 data173,38,3,141,69,12,173,39,3,141,70,12,169,60,141,38,3,169,12,141
110 data39,3,173,2,221,9,4,141,2,221,169,255,141,3,221,173,13,221,173,
120 data221,9,4,141,0,221,160,0,185,97,12,240,6,32,210,255,200,208,245,96
130 data72,165,154,201,4,240,4,104,7,0,0,104,141,1,221,173,0,221,41,251
140 data141,0,221,9,4,141,0,221,173,13,221,41,16,240,249,24,96,32,32,32
150 data32,32,32,32,32,67,69,78,84,82,79,78,73,67,83,32,68,82,73,86
160 data69,82,32,79,78,46,46,46,46,0,-1
200 sys dec("0c00"):new
```

BASIC LOADER PROGRAM C64 Mode

```
10 rem centronics code basic loader 64 mode
20 base=49152:inc =0
30 read a:if a = -1 then 200
40 poke base+inc,a:inc=inc+1
50 goto 30
100 data173,38,3,141,69,192,173,39,3,141,70,192,169,60,141,38,3,169,192,141
110 data39,3,173,2,221,9,4,141,2,221,169,255,141,3,221,173,13,221,173,0
120 data221,9,4,141,0,221,160,0,185,97,192,240,6,32,210,255,200,208,245,96
130 data72,165,154,201,4,240,4,104,76,0,0,104,141,1,221,173,0,221,41,251
140 data141,0,221,9,4,141,0,221,173,13,221,41,16,240,249,24,96,32,32,32
150 data32,32,32,32,32,67,69,78,84,82,79,78,73,67,83,32,68,82,73,86
160 data69,82,32,79,78,46,46,46,46,0,-1
200 sys 49152:new
```

ATTENTION ALL PROGRAMMERS!!

You may be an experienced programmer – you may be a beginner. Either way, you may have come across some useful tips which could make life easier for other CCI readers.

Or maybe you have written a program, either in Basic or assembly language, that you feel is worthy of publication.

CCI always welcomes contributions from readers. We will publish any suitable listings or programming advice...and we'll pay you for it!

If you wish to contribute something for publication, we require programs on cassette or disk, together with any additional explanatory information and a CLEAR printout of any listings. (The better the original printout, the better the reproduction in the magazine.)

Please enclose a SAE if you wish to have your program returned to you. Please package disks or cassettes carefully!

The address to send contributions to is:
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Don't forget...CCI welcomes programs for all Commodore computers – 64, Plus/4, C16, 128 plus the VIC and PET.

ICPUG is a highly influential organisation and brings many benefits to its members across the whole range of Commodore activity. CCI considered that a regular column from ICPUG would be of interest to many readers. The views expressed by ICPUG may not be those of CCI

Since last month, some very significant changes have occurred within ICPUG. If you have seen our press releases over the last few weeks, you will have some idea of what I am waffling on about. For those of you who haven't, I will go into a few brief details. The significant date was Saturday, 27 September, the location, Westminster Central Hall, the occasion was the ICPUG A.G.M. An awed hush fell on the hall as the Chairman stood to make his opening address . . .

All the formalities done with, we got down to the main business of the day, which was to disband ICPUG. Before we did though, we took the precaution of transferring all the assets out, and moving them into a new organisation, by the name of ICPUL — the Independent Commodore Products Users Limited. The net effect is that ICPUG has become a trading Co-operative, with what magic phrase, 'limited liability'. The unusual aspect is that as a trading co-operative, we do not trade! — such is the nature of a user group. We do, however hold the unique distinction of being the first (and so far only) user group to venture along this route. A vote of thanks must go to our legal beagle, Alistair Kelman, and our new Chairman, Jim Kennedy, for the immense job of organising the changeover.

A major part of ICPUG's activity is centred around regional groups, and we have 66 of these scattered around the country. My local Titchfield group had a demonstration this week of a locally made teletext adapter for the Commodore 64 and 128. I shall be reviewing this interesting little gizmo outside this column in the next issue, but I believe the concept of teletext is interesting enough to be discussed here.

I do not have a teletext set, so did not really know what to expect, maybe just TV news, weather and recipes. But there is also an area devoted to home micros. At the moment, coverage is limited to BBC, Amstrad and Spectrum machines, but I am assured that discussions are under way to include Commodore in the coverage. Telesoftware can be downloaded for the computers already covered, and will probably be available for the Commodore when it appears on the system.

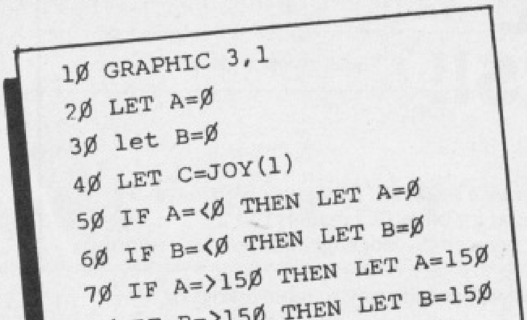
Teletex has the great advantage of being free, although, unlike Prestel, it is not interactive in any way. There is potential for vast expansion in the networks — only the top few lines of the picture currently make up teletext, but it is feasable to use the whole screen in a dedicated teletext channel. This would offer a huge database and very fast update times. Maybe in a few years time you will be reading ICPUG in CCI via your TV or teletext adapter. Who knows?

By the way, I will be showing the adapter at the Commodore Show in November, so if your interested, look up the ICPUG stand. See you on the bit stream.

C16 Sketcher

by Andrew Walker, aged 8

This program enables you to draw on-screen in hi-res. It was written by what must be our youngest contributor yet and perhaps a name to watch out for in the future.



```
10 GRAPHIC 3,1
20 LET A=0
30 let B=0
40 LET C=JOY(1)
50 IF A=<0 THEN LET A=0
60 IF B=<0 THEN LET B=0
70 IF A=>150 THEN LET A=150
80 IF B=>150 THEN LET B=150
90 IF C=1 THEN LET A=A-1
100 IF C=5 THEN LET A=A+1
110  IF C=3 THEN LET B=B+1
120 IF C=7 THEN LET B=B-1
130 IF C=128 THEN GOTO 10
140 DRAW 1,B,A
150 GOTO 40
```

To work Sketcher, you use the joystick in Port 1. Press the fire button on the joystick to clear the screen.

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If you are seriously interested in using or programming any Commodore computer, then joining ICPUG is a must!
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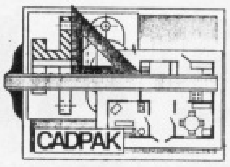

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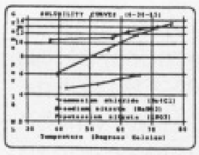

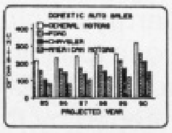

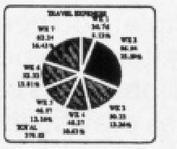

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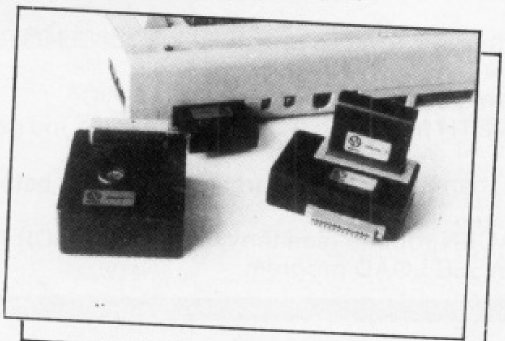

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ERASE THE OBSOLETE ARRAY

If your programming work in basic includes a frequent use of arrays, this routine is for you.

In many circumstances (statistics programs for example) you need arrays for internal storage of data, on which some part of your program will work. After this work, one (possibly more) of the arrays may become useless for the rest of the program's job. In this case, call the ERASER routine which will erase the obsolete array. The amount of bytes previously needed by the array will be then available for the later memory-requirements of your program. Incidentally, this allows you to redimension your array. Furthermore, if your array is a string one, the ERASER routine will in addition clean the string area (garbage collection). The total amount of bytes recovered in this way may be important, avoiding the hopeless "OUT OF MEMORY" error message. Lastly, note that the ERASER routine may also be called in direct mode.

How to use ERASER

1. LOAD "ERASERLOAD",8 from disk or tape (omit ,8 in this case) as usual.
2. RUN the program to deposit the ERASER routine into RAM. It occupies the locations (49560-49657).
3. Type NEW and type or load your own program.
4. If a array (somewhere dimensioned in your program by DIM AB$(10,15) for example) becomes useless later in your program, then insert in the proper place the instruction
SYS 49560,AB$(0,0)

Once executied, this instruction will erase the array AB$ and clean the string storage area from all the strings previously pointed by the elements of AB$.

How it works

With Basic, the array storage area takes place just after the variables and is pointed by the two pointers named ARYTAB (47-48) and STREND (49-50). Let's now have a look at the ERASE routine.

To efficiently erase an array, follow these steps:

1. Localise the end of this array in the memory and put this address into a pointer that we call PTRFIN.
2. Evaluate the amount of bytes occupied by the array and put this number (let's call it LENGTH) somewhere in memory. We put it in (105-105).
3. Move LENGTH bytes downwards the memory area between PRTFIN and STREND.
4. Adjust the value of STREND by subtracting LENGTH from it, so that it points now to the new end of the array storage area.
5. Test the type of the array. If it is a string array then perform the garbage collection before returning.

A last word to thank Barry Parker for his DATAGEN routine (see the May issue of CCI) for generating the data statements which is of the ERASER LOAD program.

```
100 REM ******************************
110 REM *                            *
120 REM *       ERASER DEMO          *
130 REM *                            *
140 REM *  PAUL GERARD    JUNE 1986  *
150 REM *                            *
160 REM *        FOR C.C.I.          *
170 REM *                            *
180 REM ******************************
190 I=0:J=0:EA=0:FR=0
200 PRINT"[illegible]IS THE ERASER ROUTINE IN MEMORY?(Y/N)?"
```

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```
210 POKE198,0:WAIT198,1:GET R$:IFR$="Y"THEN 240
220 IFR$="N"THEN PRINT"█ LOAD+RUN ERASER LOAD BEFORE ERASER DEMO":END
230 PRINT"█(Y/N)":GOTO210
240 GOSUB1000:PRINT"█I CREATE THE ARRAYS A%,B$ AND C USING ".
250 PRINT"█DIM A%(15),B$(25,25),C(10,2)":PRINT"█AND LET A%(I)=I"
260 PRINT"████████B$(I,J)=I AND J IS (I+J)":PRINT"████████C(I,J)=I*J"
270 PRINT"█READ LAST CCI ISSUE DURING I DO THIS JOB"
280 DIMA%(15),B$(25,25),C(10,2):FORI=0TO15:A%(I)=I:NEXT
290 FORI=0TO25:FORJ=0TO25:B$(I,J)=STR$(I)+"AND"+STR$(J)+"IS"+STR$(I+J):NEXTJ,I
300 FORI=0TO10:FORJ=0TO2:C(I,J)=I*J:NEXTJ,I:PRINT"█OK":GOSUB1100:GOSUB1000
310 GOSUB1100:PRINT"██NOW,I ERASE THE ARRAY B$ USING":PRINT"█SYS49560,B$(0,0)█"
320 SYS 49560,B$(0,0):GOSUB1100:GOSUB1000
330 PRINT"█LET'S NOW REDIMENSION THE ARRAY B$ BY   DIM B$(18) AND LET"
340 PRINT"█B$(I)=STR$(I*2)"
350 DIMB$(18):FORI=0TO18:B$(I)=STR$(2*I):NEXT
360 PRINT"█OK":GOSUB1100:GOSUB1000:GOSUB1100
370 PRINT"█WANT YOU TO SEE THE ARRAYS A%,B$ AND C?  PRESS Y/N "
380 POKE198,0:WAIT198,1:GETR$:IF R$="Y" THEN 410
390 IF R$="N" THEN 450
400 PRINT"PRESS Y OR N ":GOTO380
410 PRINT"████ARRAY A%█":FORI=0TO15:PRINT"A%(";I;")=";A%(I):NEXT:GOSUB1100
420 PRINT"████ARRAY B$█":FORI=0TO18:PRINT"B$(";I;")=";B$(I):NEXT:GOSUB1100
430 PRINT"████ARRAY C█":PRINT"█I","C(I,0)","C(I,1)","C(I,2)█"
440 FORI=0TO10:PRINT I,C(I,0),C(I,1),C(I,2):NEXT
450 PRINT"██THANK YOU VERY MUCH AND GOOD BYE█":END
1000 PRINT"█HERE ARE THE ACTUAL VALUES OF THE TWO   POINTERS STREND AND FRETOP"
1010 EA=PEEK(49)+256*PEEK(50):FR=PEEK(51)+256*PEEK(52)
1020 PRINT"█STREND(END OF ARRAYS (+1))=";EA
1030 PRINT"█FRETOP(BOTTOM OF STRING AREA)=";FR
1040 PRINT"█FREE SPACE IN MEMORY=";FR-EA:RETURN
1100 PRINT"█TO CONTINUE, PRESS A KEY":POKE 198,0:WAIT198,1:GETR$:RETURN
READY.
```

```
100 REM *******************************
110 REM *                             *
120 REM *      *** ERASER LOAD ***    *
130 REM *                             *
140 REM *   PAUL GERARD     JUNE 86   *
150 REM *                             *
160 REM *******************************
170 REM
180 REM THIS PROGRAM LOADS THE "ERASER"
190 REM MACHINE CODE INTO (49560-49668)
200 REM CALL THIS ROUTINE BY
210 REM SYS 49560,NAME(0,...,0)
220 REM THIS WILL ERASE THE ARRAY NAME
230 REM AND DO THE GARBAGE COLLECTION
240 REM IF NAME IS A STRING-ARRAY
250 PRINT"██████████LOADING MACHINE CODE█"
260 MC=49560:RL=0:LN=40000
270 SC=0:FORI=0TO7:READ D
280 IFD<0 THEN 350
290 IF D>255 THEN 340
300 POKE MC+RL,D:SC=SC+D:RL=RL+1:NEXTI
310 READ D:IF D<0 THEN 350
320 IFSC=D THEN LN=LN+10:GOTO 270
330 PRINT"SUMCHECK ";
340 PRINT"ERROR IN LINE";LN:GOTO390
350 READ D:IF SC<>D THEN 330
360 PRINT:PRINTSPC(8) "LOADED":PRINT
370 PRINT"█TO USE. TYPE THE FOLLOWING:██"
380 PRINT"█SYS 49560,ARRAYNAME(0,...,0)█"
390 PRINT:END
400 REM
410 REM MACHINE CODE DATA FOLLOWS
420 REM
40000 DATA 32,253,174,32,139,176.165,95,1066
40010 DATA 133,97,165,96,133,98,165,49,936
40020 DATA 133,101.165,50,133,102,160,2,846
40030 DATA 177,95.133,105,200,177,95,133,1115
40040 DATA 106,216.24,165,97,101,105,133,947
40050 DATA 99,165,98.101.106,133,100,165,967
40060 DATA 99,197.101.208,9,165,100,197,1076
40070 DATA 102,208,3,76,235,193,160,0,977
40080 DATA 177,99,145,97.230,99,208,2,1057
40090 DATA 230,100,230,97,208,2,230,98,1195
40100 DATA 76,199,193,216,56,165,49.229,1183
40110 DATA 105,133,49,165,50,229,106,133,970
40120 DATA 50,165,69.48,7.165,70,16,590
40130 DATA 3,32,38.181,96,-1,350
READY.
```

BASIC for begginners

PART IX

A *FILE* is a term for a collection of data that is kept in such a form that it can be stored and retrieved. Most beginners, myself included, fell into the trap of thinking that a file contained only information that was very carefully controlled and kept very neat in layout — rather as the contents of a filing cabinet should be kept. In fact I used to think that a file could only contain such information as names and addresses, telephone numbers and birthdays, etc. The astute readers amongst you will have noted my use of the word *data* in my definition rather than *information.* What's the difference, I hear you cry? Quite a lot!

You have to remember that you are dealing with computers, which despite their public image are completely unintelligent. I know we have moved on from the popular conception of the 1960's and that most people no longer regard the computer as some kind of *man-made brain.* A computer is unable to distinguish between what you or I would call information — intelligible information in the sense of names and addresses. The computer sees this purely and simply as data. However, you or I **can** distinguish between program *data* and memory *information* such as a series of telephone numbers. As a demonstration of how dumb your computer is would you believe that it cannot even recognise the start and finish of your data, you even have to tell it that? I'll allow my machines to come out from under the desk now and promise not to taunt them any more today!

In the last part of the series I mentioned the different storage devices available to you and how the system could distinguish between them by using *device numbers.* This method of device separation tells us very little of the characteristics of each device, which in this instance are the **cassette unit** and **disk drive.** The disk drive is termed a *random-access* device which means that data stored anywhere on the medium can be *accessed* — in other words it can be read or written to. The storage medium used for a disk drive is a *floppy disk*, so named because the original designs of floppy disks in the 1970's were encased in cardboard and were prone to being bent rather easily. My favourite analogy of floppy disks is that of an LP record — to find the piece of music your require is simply a matter of moving the record player arm to the correct location on the LP itself. This is exactly the same operation that the disk drive carries out, except that in the case of Commodore disk drives, the placement and location of the data is left entirely to the disk drive. The computer has no control or interest in where the data is on the disk. This is a simplified version of events and does not take into account advanced programming techniques which allow the programmer direct-control over the data on a disk.

A cassette unit relies on tape which, although it is very similar material in physical and electromagnetic terms to that used for floppy disk can only operate in a *sequential* manner. This means that in order to find a piece of data, the tape must be positioned to the point where the data is located on the tape. If it happens that the data is located about half-way through the tape, then the tape has to be tediously wound to this point. Users of in-car entertainment cassette units will know all about this problem! Thus a cassette tape, unlike a floppy disk, is not a *random-access* device.

In Commodore BASIC there are three types of file available to the programmer — these are **random access, sequential** and **relative.** A floppy disk can operate with all three, whilst a cassette is tied to the first two types only. However, in practical terms cassettes are mainly used for the first type since random access files are used for program data. Note that *program data* in this context means the **actual** program and not data generated during the course of a program's execution. On a floppy disk, a random access file has a **-PGM** suffix shown in the disk directory to the file's name indicating the main purpose for random access files. From this point in the text I will refer to random access files as *program files* to avoid confusion.

A program file is designed to be read directly into memory from start through to finish, without interruption. All BASIC programs are loaded and saved in this format. If for any reason you cause an interruption, the following screen message will be displayed:

?BREAK ERROR

This is different from a situation where a corruption of the data has occurred and been detected during the load cycle. In this instance the display will read:

?LOAD ERROR

A sequential file can be seen on a disk directory by the **-SEQ** suffix and cannot be loaded directly into memory. Its contents can only be read by using special commands which can be operated from within BASIC. Another difference between a program and sequential file is that the latter can be stopped at any point during the loading cycle and the contents then read. Additions to sequential files can only take place at the end of the file itself — in a program file data can be added anywhere. In fact a sequential file can be of such a size that it is too large to be read into memory at once. In anticipation of your questions of how do you create a large file and why is such a large file necessary — I'll answer the last part first! A sequential file can compress data to a much greater degree than a program file, thus for a given *unit-of-storage* a sequential file can show a substantial saving over a program file. Creating large sequential files can be done through a third-party, in this case on a floppy disk or by reading into your machine a second sequential file at the point where the first sequential file ends and then saving the whole thing as new file. The following diagram explains:

	Computer Contents	Cassette/Disk Contents
1. *load File A*		FILE AFILE B
2. *load File B*	FILE A	FILE AFILE B
3. *save as File C*	FILE A + FILE B	FILE AFILE B
4.	FILE A + FILE B	FILE AFILE BFILE C

To carry this out on disk, the **CONCAT** command is used, although this is not available to C64 or PLUS/4 users, only C128 users. Sequential files are used mainly as files that store data output from a program. Thus word processors and database programs make great use of this type of file.

The remaining file type is the relative file which is really a sort of half-way house between a program file and a sequential file. New data can be added anywhere, not just at the end of the file as with a sequential file, so a relative file has this advantage in common with program files. The other advantage relative files offer are an identical structure (in storage terms) to sequential files which means a storage media space saving over program files. However, there are as ever overhead costs to relative files and these are — additional programming is necessary in order to use them, relative files after some difficulty can be copied from disk to disk, there is a documented bug in Commodore DOS over relative files. Operation of relative files follows much the same lines as that with sequential files except that the concept of a *record pointer* is used. This is used to position the entry point of the computer into the file for reading or writing data. Thus the record pointer could be positioned right at the very beginning of the file, or somewhere in the middle. For example, assume that we had file based on alphabetic data — that is, beginning with A and finishing with Z. If we wanted to make a new entry to the B's on a sequential file this would mean reading the complete file into memory, making the amendment and then writing it back to the storage unit. With a relative file, the entry point would be located for us and space made for the amendment.

For most purposes in BASIC programming, the sequential file forms the workhorse so let's look more closely at these. Because of the differences in the various dialects of Commodore BASIC, I will be using BASIC 2.0 which means that users of the PLUS/4 and C128 can still use the following examples. For those users who have only access to a cassette unit rather than a disk drive, than substitution of the unit number from 8 to 1 will still achieve the desired results. However, you will have to organise the rewinding back to the beginning of the file yourself.

OK, we will now move on to some programming — I bet you were wondering when! Make sure that you have a formatted disk in your drive or a cassette ready in the cassette unit and enter the following in direct mode:

```
OPEN 4,8,4,"O:NUMBERS,S,W"
```

If you are using a cassette change the number **8** to **1** and leave out the **0:** completely, then follow the screen instructions which prompt you to press the PLAY and RECORD buttons. Disk drive users will note some activity at the drive and the green light will remain lit. Don't worry, this is quite in order. The next thing to do is to enter the following and press RETURN at the end of each line:

```
PRINT#4,1111      >RETURN>
PRINT#4,2222      >RETURN>
PRINT#4,3333      >RETURN>
PRINT#4,4444      >RETURN>
```

Finally, enter the following:

```
CLOSE 4           >RETURN>
```

The disk drive light will then go out and if you have a look at your disk directory you will find a sequential file entry named NUMBERS. Unfortunately, this is where cassettes show their disadvantages since they cannot display a directory as such and files can only be detected by reading through the tape completely. The next step is to enter the following program:

```
10  OPEN 4,8,4,"0;NUMBERS,S,R"
20  FOR A = 1 TO 4
30  INPUT#4, B$
40  PRINT B$
50  NEXT A
60  CLOSE 4
```

Cassette users — remember to leave out the 'O:' and change the 8 to 1 in line 10. When you run this program the screen display will look as follows:

```
1111
2222
3333
4444
```

So, we have written some data to storage and retrieved it, let's look at how this was done. In the first program we *opened* a file but used some new elements — look again at the command:

OPEN X,U,Y,"O:***filename,filetype,***
action"

The numeric values X and Y refer to the **file** number and **channel** number respectively. Your computer will allow you to have a certain number of files open at the same time, although you can only open a file once during a file operating session. The purpose of *file numbers* is to keep check of how many files are currently open. *Channel numbers* are rather more complex and you should refer to your relevant operating manual. Suffice to say that these are used by the device itself to keep track of matters. The numeric values that can be assigned to X can be 1 to 127. The variable U represents the unit numbers which were discussed in the last part of the series and is 1 for a cassette and usually 8 for a disk drive.

If we now look at the contents of the quotation marks, the first part is rather superfluous these days and refers to the drive number. It is therefore only of use when employing a disk drive and a dual drive at that. However, the vast majority of users including myself, do not have a dual drive thus this could be omitted entirely. The filename is self-explanatory and should be a unique name to avoid problems with one that already exists on the disk. The last two items are the main components of the exercise — the filetype and action. The filetype in this example is 'S' for 'sequential' and the action 'W' meaning 'write'.

The actual data is being sent to the file using the PRINT# statement. This is slightly different from the more familiar PRINT statement which sends data from the keyboard to the screen or printer — PRINT# send it to a specified file number, in this case file number 4. It is very important that the PRINT# number concurs with the opened file. Another point worth noting is that PRINT# cannot be abbreviated by using ?# — *this is incorrect.* The correct shorthand, for those who know about such things is **pR.**. The final stage of the first part of this exercise is to close the file — again ensuring that the file number is correct.

The program now becomes easy to understand. Line 10 re-opens the file called NUMBERS to be read — note the **R** following the **S**. Line 20 sets up a simple loop running for 4 times while line 30 uses another command we have not met previously in this series, namely the INPUT# statements. This operates on a similar principle to the PRINT# statement and allow you to retrieve data from a numbered file using a defined variable. In this instance we are using a string variable, B$. Line 40 prints out to the screen the contents of B$ while line 50 increments the loop. When the loop counter reaches a value of four, then the program drops through to line 60 which closes the file.

File handling, and its ramifications, is probably the most important part of learning how to put a programming language into practical use. I mentioned earlier about studying the relevant User Manual for your cassette or disk drive. Perhaps now, some of the *HAG* language that Commodore uses in the manuals it publishes may begin to make some sense to you. In the next part of the series I will be going further into file handling and demonstrating a short practical example. If space permits I'll also try and throw some light on the mysterious Relative files used by Commodore computers. I say mysterious, since so little seems to be published on them. Incidentally *HAG* is short for *High-Abyssinian Greek* and the term is generally credited to an unknown USA programmer who coined the term after wrestling with the numerous AMIGA technical manuals!

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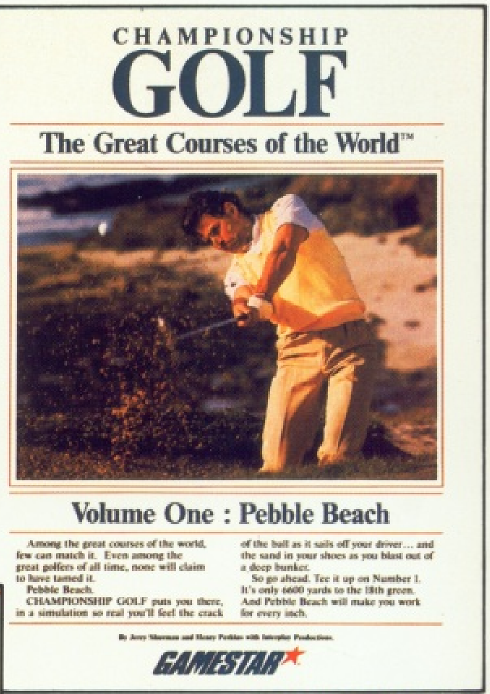

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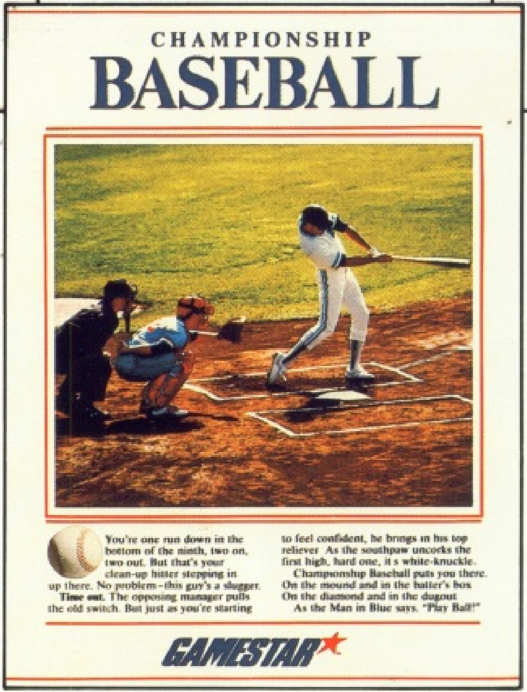

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